

# The Mining Journal,

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An Illustrated Record of Mining, Metallurgical, Railway, Financial, Industrial, And Engineering Progress.

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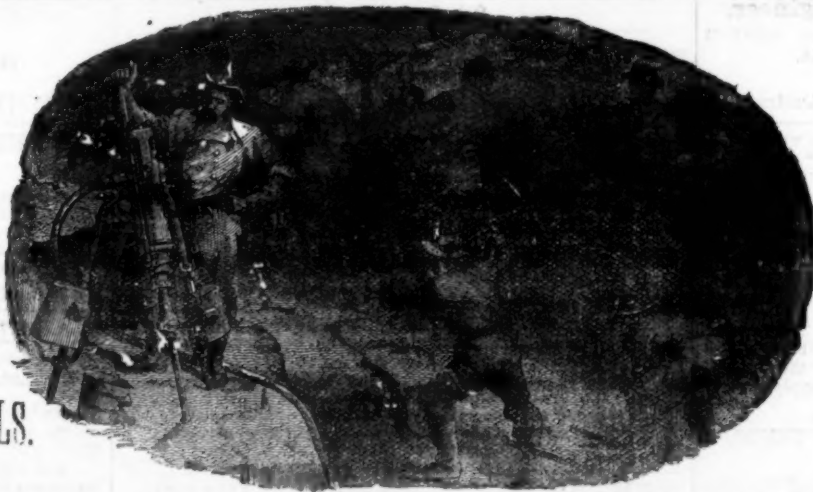
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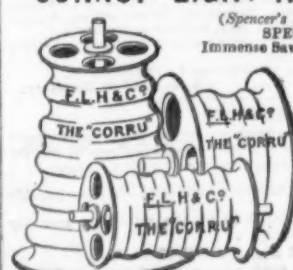
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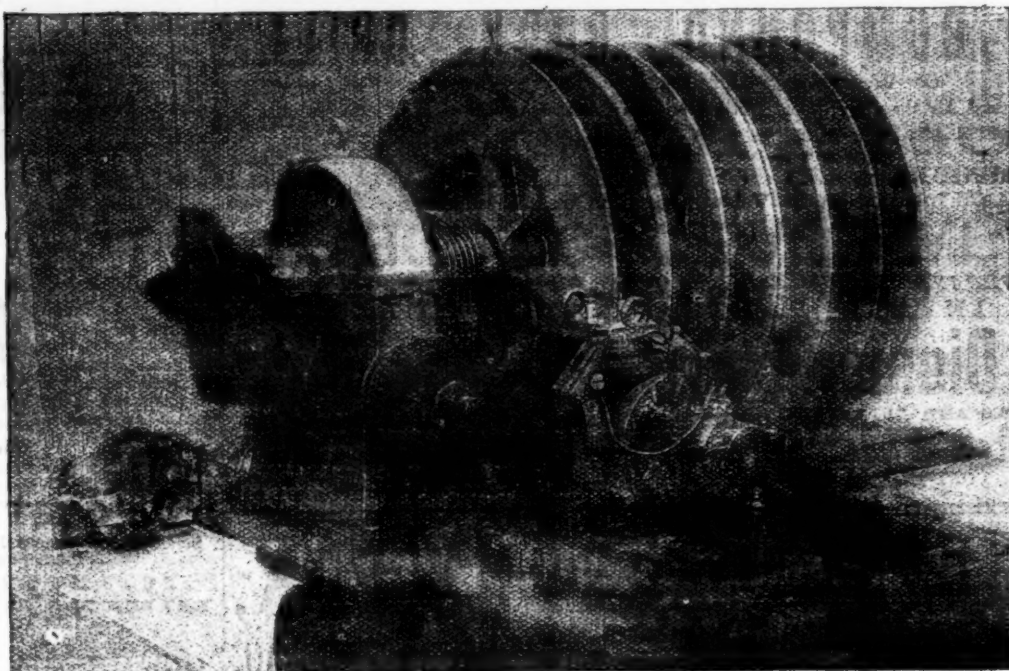
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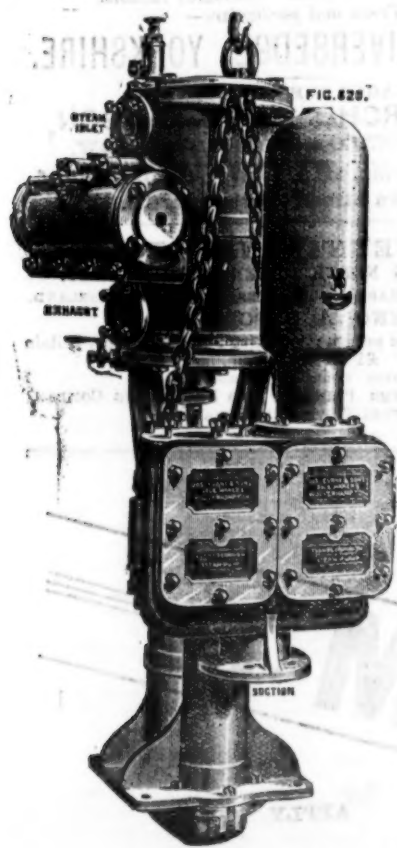
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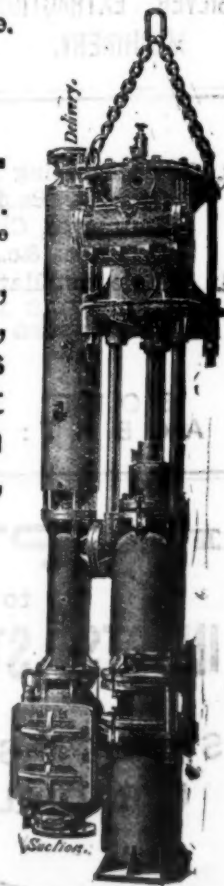
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FIG. 875, "FLUOMETER"  
PATENT STEAM VACUUM  
PUMP.



"STRAIGHT-LINE"  
PATTERN  
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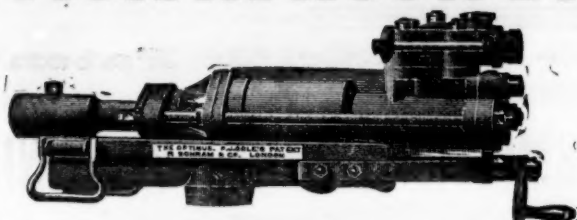
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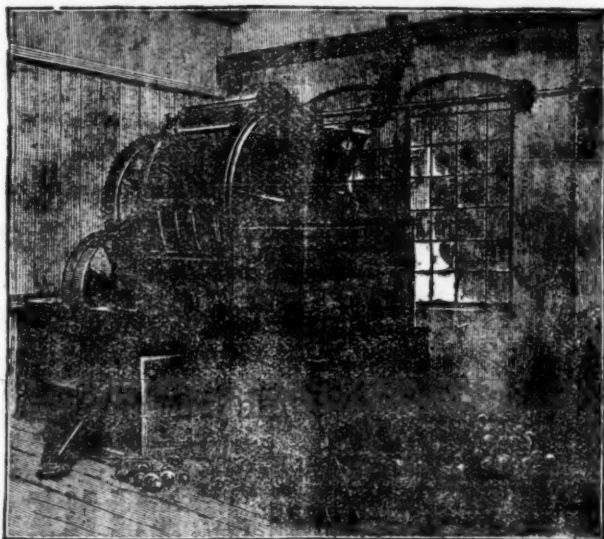
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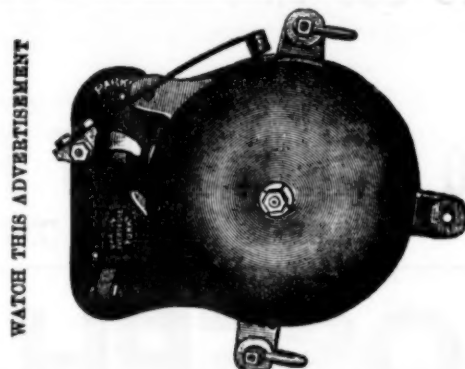
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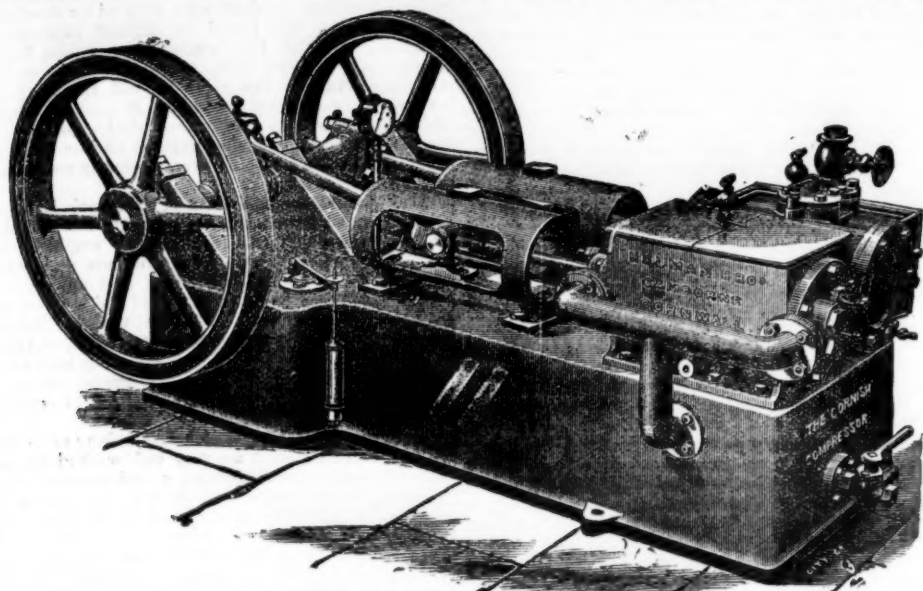
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## RECORD OF WORK DONE

At Botallack Mine, St. Just, Cornwall, **TWELVE MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** drove, sunk, and rose **288 FATHOMS** in **12 MONTHS**, equal to five times the Speed of Hand Labour

At Wheal Grenville Mine, Camborne, Cornwall, **SIX MEN** with **TWO** new Patent **CORNISH ROCK DRILLS** started from the **150 FATHOMS** level and put up in **EIGHT MONTHS** a **11 FEET** by **5 FEET PERPENDICULAR RISE** **46 FATHOMS 5 FEET 6 INCHES**, and about midway drove **1 FATHOM 5 FT.** No communication of any kind was effected until holing to the Shaft brought down from surface.

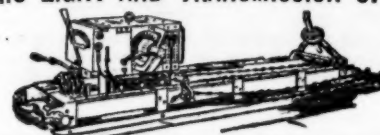
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 WORKED EITHER BY COMPRESSED AIR OR ELECTRICITY.  
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 ALL PARTS INTERCHANGEABLE.

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**TURBINES OF ALL EFFICIENT TYPES.**

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**AWARDS:** CRYSTAL PALACE, 1890; TASMANIA, 1891; KIMBERLEY, 1892.

# CONCENTRATION.

**The Clarkson-Stanfield Ore Reduction Co. (Limited).**

In the **CLARKSON-STANFIELD** process of Concentrating Refractory and Complex Ores no water is required; dust is reduced to a minimum; the loss of Mineral through water-borne Slimes is obviated.

**OUTPUT  $\frac{1}{2}$  TO 2 TONS PER HOUR, ACCORDING TO SIZE OF MACHINE.**

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The Machine is superior to Sieves for Sizing Homogeneous Substances, such as Emery, Sand, and Powders, and may be used to great advantage in the preparation of Ochre.

**N.B.**—The owners of the Carndochan Mine, near Bala, North Wales, will, by arrangement, show their **CLARKSON-STANFIELD** plant working on a Refractory Low Grade Gold Ore.

## NEW PATENTS.

**LIST of APPLICATIONS for New Patents** relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 15488 Frederick Henry Haviland, Arthur Holloway, John Bruce Collier, and William Henry Murch, Upper Terrace Road, Bournemouth.—A new or improved furnace.
- 15538 Walter Bowthorn, 27, Victoria Street, Birmingham.—Improvements in explosion engines.
- 15670 William Feighton, 55, Chancery Lane, London.—Improvements in boiler flues and fire boxes.
- 15779 Amelie Anguste Philippe and George Shenton, 15, Buckingham Street, London.—A new or improved heat generator and accumulator.
- 15813 Thomas Williamson, 1, Buchanan Gardens, Mount Vernon, Lanarkshire.—Improvements in fire-grate bars for furnaces.
- 15961 Robert James White, 73, Blingreville Road, Harringay, London.—Improvements in steam traps.
- 15976 Joseph Hopkinson, 43, Southampton Buildings, Chancery Lane, London.—Improvements in stop valves.
- 15978 Henry Harris Lake, 43, Southampton Buildings, Chancery Lane, London.—Improvements in ovens and furnaces therefor.

### SPECIFICATIONS PUBLISHED.

13950, Smith, steam boilers; 17161, Bills and Rodde, steam boiler furnaces and flues; 17721, Peterson, water tube steam boilers; 1936, Helmer, steam pipes; 18194, Sanderson, furnaces and grates; 12805, Altham, oil engines.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each, including postage.

A MEETING of the Shareholders' Association of the South American and Mexican Company (in liquidation) was held at Winchester House, on July 29, Mr. W. C. Johnson presiding. The Chairman gave an account of the history of the association, and the services it had rendered to the contributories, and stated that it was not at all probable that the remaining liability of £1 per share would be called up. It was resolved that the association should now be wound up, and that a sum of £100 be presented to Mr. John Samson, of the *South American Journal*, the hon. secretary, as an appreciation of the services he had rendered to the association. The funds placed at the disposal of the association have been so economically managed that one-third of the contributions will now be available for return to the subscribers.

THE Flinders Bay district, which has been prospected for coal for some time, is now attracting a deal of attention locally, says the *Perth Mining Journal*. Several new leases have been applied for, and the developments are being awaited with interest.

## JOINT-STOCK COMPANIES.

### NEW REGISTRATIONS.

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

Cataract Barborton Gold Mining Company (Limited).—Registered June 13 by H. Elsdon, E.C., with a capital of £25,000, in £1 shares, to acquire, by purchase or otherwise, any mines, mining rights, &c., in the Jamestown district, De Knap Gold Fields, and in the north and South De Knap district, Barborton. Registered office, 45, Abchurch Lane, E.C.

Central Development Syndicate (Limited).—Registered July 13 by J. H. Collins, 14 and 15, Broad Street Avenue, E.C., with a capital of £25,000 in £50 shares, to acquire any mines, mining rights, &c., in the United Kingdom or elsewhere.

Wintrop Syndicate (Limited).—Registered July 13 by Loughborough, Gedgo, and Co., 23, Austin Friars, E.C., with a capital of £20,000 in £1 shares, to acquire, by purchase or otherwise, the Wintrop mining grant, situated at Bar-kersville, British Columbia. Registered office, 23, Austin Friars, E.C.

Mikado Gold Mining Company (Limited).—Registered July 13 by Mayo and Co., 10, Drapers' Gardens, E.C., with a capital of £45,000 in £1 shares, to enter into an agreement with the South African General Development Syndicate (Limited), and to carry on the business of a mining and smelting company in Canada or elsewhere.

Hannans's Belle View Gold Mining Company (Limited).—Registered July 14 by Mayo and Co., 10, Drapers' Gardens, E.C., with a capital of £100,000 in £1 shares, to acquire, by purchase, lease, or otherwise any freehold or other farms, mines, mining rights, &c., in Australia. Registered office, Dashwood House, E.C.

Dunallan Gold Mines (Limited).—Registered July 15 by Spencer, Orland and Co., 45, Finsbury, with a capital of £25,000 in £1 shares, for the acquisition of property situated in the Coolgardie district of Western Australia.

San Juan Gold Mines (Limited).—Registered July 14 by C. Marshall Dix, 6, Old Jewry, E.C., with a capital of £100,000 in £1 shares, to acquire any mines, mining, water and other rights, grants, leases, claims, concessions, options of purchase, metalliferous land, &c. Registered office, 6, Old Jewry Chambers, E.C.

Grey Consolidated (Limited).—Registered July 14 by Ingle, Holmes and Sons, 20, Threadneedle Street, E.C., with a capital of £200,000 in £1 shares, to acquire mines, mining rights, &c., in New Zealand.

Queensland General Exploration Company (Limited).—Registered July 16 by Ashurst, Morris, Orisp, and Co., 17, Throgmorton Street, E.C., to acquire any concessions, grants, rights, privileges, claims, contract, &c., from any company, state, government, sovereign or authority which may seem to the company capable of being turned to account.

Cripple Creek Consolidated Mines (Limited).—Registered July 15 by Ramsden and Co., 159, Leadenhall Street, E.C., Capital £250,000, in 10s. shares.

Riverside Gold Mines (Limited).—Registered July 16 by Snell, Sons, and Greenup, 1 and 2, George Street, Mansion House, E.C. Capital £20,000, in £1 shares, to acquire any mines, mining rights, &c., in the United States of America. Registered office, 110, Cannon Street, E.C.

Northern Territories Gold Fields of Australia (Limited).—Registered July 16 by Davidson and Morris, 49 and 42, Queen Victoria Street, E.C. Capital £300,000, in £1 shares, for the acquisition of any mines, mining rights, &c., in Australia.

## CONTRACTS OPEN:

**FOR MINE, QUARRY, RAILWAY, AND ENGINEERING WORK, STORES, &c.**

\*We shall be obliged by being promptly placed in possession of particulars regarding contracts open for competition, and of the results of successful tenders. In the latter case contract prices should be given.

The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

**Railways, August 11 (Hungerford and Savernake).**—For works in connection with the widening of the line between Hungerford and Savernake, a distance of about 2½ miles, for the Great Western Railway Company. Plans and specification may be seen, and forms of tender and bill of quantities, obtained at the office of the Engineer at Paddington Station between 10 a.m. and 4 p.m. Tenders addressed to Mr. G. K. Mills, secretary, Paddington Station, London, and marked outside "Tender for Widening between Hungerford and Savernake," will be received on or before August 11.

**Railway Stores, August 11 (Ulrecht).**—For the supply of 11 lots of railway stores to the company working the Netherlands Railways. Particulars for G 4 A (Ed.) from the Ulrecht Stores and at Rotterdam and Arnhem.

**Coal, August 13 (Newark).**—For the supply of 500 tons of best screened South Yorkshire gas coal, delivered at Newark, G.N.R. in such quantities as may be required during year from September 1 for the Newark Gas Company. The coal is to be delivered fresh wrought and free from dirt, bits, shale, pyrites, and other impurities. Tenders, marked on the outside "Tender for Coal," to be sent to Mr. Fred. B. Footitt, secretary and manager, by August 13. For further particulars apply to the secretary and manager.

**Iron and Steel, August 15 (Lancaster).**—For the supply and delivery of about 220 lineal yards of 1½ inch cast iron pipes and special castings, for the Water Committee. Specifications and forms of tender may be obtained on deposit of a cheque for £1 is., which will be returned on receipt of a bona fide tender, on application to Mr. John Cook, A.M.I.C.E., water engineer, Town Hall, Lancaster. Sealed tenders, endorsed "Tender for Pipes," to be delivered to Mr. W. O. Hoper, Town Clerk, Town Hall, Lancaster, by August 15.

**Railway Stores, August 19 (Brussels).**—For accessories for Vignoles rails, bolts, nuts, &c. Application at the Brussels Bourse, where particulars may be obtained.

**Engineering, August 20 (Exmouth, Cheshire).**—For lining out the present borehole of No. 1 well at Poulton Waterworks, and boring a further depth of 300 feet, for the Walsley Urban District Council. Specification may be seen, and form of tender and any other information obtained on application to the engineer, Mr. J. H. C. Oother, Gas and Waterworks, Great Fines, near Birkenhead. Sealed tenders, on the form provided for the purpose, addressed to the Chairman of the gas and water committee, and endorsed "Tender for lining out borehole, &c.," to be delivered at the office of Mr. W. Danger, clerk, Public Offices, Egremont, by 4 p.m. on August 20.

**Rolling Stock, September 9 (Karlsruhe).**—For the supply of about 54 railway wagons of various classes, and 400 goods wagons. Application to the Direction of the State Railways, Karlsruhe, Baden.

A Be'agundi property—the Malvern Hill—is reported to have been sold to a Melbourne Syndicate for £10,000.



## MINING IN VICTORIA.

(FROM OUR OWN CORRESPONDENT.)

The Victorian Mount Morgan.—Australasian gold yield.—Extraction of sulphur from auriferous pyrites.

SINCE the publication of the various reports, of which I gave an epitome in my last, regarding the auriferous tracts of what is now known as the Victorian Mount Morgan, in the Marysville region of the Dividing Range, further discoveries have confirmed the numerous evidences of this remarkable deposit, and have brought numbers of explorers and experts to the field. These latter discoveries have very much extended the auriferous zone; instead of localising it to chains, it has been proved by surface outcrops to exist over an area of about 2 square miles, and there seems no reason to fix its limit to this radius. More ink has, perhaps, been shed over the experts' reports than over any other discovery of recent years, and still the subject bristles with conundrums; questions of fact and problems of geological formations about which the experts still wage with pen and ideal sketches, have reached the point of almost becoming a weakening influence. Mr. Cairnes' report has been accused of holding out false hopes and extravagances. The later men of any weight who have visited the field are Dr. Storer, Messrs. A. C. Murray, T. G. Davey (of the English-owned Harrierville Mines), and a Mr. L. F. Day, of Kimberley, South Africa. Captain Matthews, from Sydney, who came over to inspect the field in the interest of one of the London exploration companies, goes the whole length of endorsing Mr. Cairnes' report. Dr. Storer speaks more guardedly, and says it is probable the deposits of gold-bearing strata which are spread over a wide area will be made economically available. Mr. E. A. Ball, who is still on the field in the company of Mr. R. A. Murray, the Government Geologist, writes me:—"I prefer to pass over in silence certain points upon which information would be desirable rather than give opinions which could only be conjectured. There are many similar features to the Queensland Mount Morgan, but the practical conditions which regulate the character of the deposit are altogether local. The explorations which I have made are very satisfactory, and am confident the whole area can be wrought with profit." Mr. A. C. Murray has sent me the copy of an assay furnished him of stone taken from several outcrops, the return showing 1 ounce 5 dwts. 15 grains of gold and 24 ounces silver to the ton. Altogether there has been a slight lull to the excited state of the share market, consequent upon the setting in of the upward movement. In groping out of the darkness, peculiar to sensational finds, steadier activities are being resumed; forethought, knowledge, and prudent energy are pressing forward with schemes of large and apparently legitimate enterprise. I still counsel caution, and advise English capitalists to endeavour to corroborate for themselves the widely divergent, yet encouraging, local reports by the opinions of other practical men. A hopeful view of the new field is shown to be the most accepted; nevertheless, I am still of opinion that if English capitalists will turn their attention to the large sandstone hills around Graytown, in the Heathcote district, they will secure as good and sure a profit upon the capital invested as in any other mines in Victoria. It may be reasonably expected from present prospects that many good mines will be speedily opened up in that quarter, and which may be fully developed by water power.

The interesting statistics, disclosing the Australasian gold yield to 1894, present some important features. The total quantity obtained to the close of that year was 94,967,451 ounces, equal to 3028 tons, amounting in value to £370,466,723. Victoria heads the list with a very large surplus over the next highest. The total stands at 59,000,000 ounces. New Zealand comes next with 12,750,000 ounces, and New South Wales is third, with 11,000,000 ounces. Referring to value per ounce of gold, Victoria takes the pride of place.

Victorian gold is averaged at £3 17s. 6d. per ounce, while Charters Towers (Queensland) gold will only average £3 10s., and Croydon (Queensland) gold touches its highest point at £3 5s. So poor is the gold on some of the Queensland fields that it is not locally known as gold, but as white metal, by reason of it being associated with so large a proportion of silver.

The general summary all tends to show both the extent and real richness of the Victorian gold deposits, and to prove that whatever inducements other fields can show for English capital, Victoria can incontestably adduce better ones. There have been failures, and many of them, but in no single instance of any importance can such failures be ascribed to insufficiency of ore or wash dirt of paying richness. Volumes may be written of bad management and extravagance, combined with too little capital at first, and too great expectations always.

For many years it has been a matter of reproach to Victorian metallurgists that no attempt has been made to combine the manufacture of sulphuric acid with the extraction of gold from auriferous pyrites. With the increasing attention which mining and its allied interests are receiving, the subject is once more revived, and a project is on foot to secure the assistance of English capital for the establishment of works within the colony on the lines indicated. In a statement put forth the promoters contend that for each ton of auriferous pyrites treated, something like half a ton of sulphur is lost, which if converted into sulphuric acid during the roasting process will theoretically yield over 19 tons of acid, the current price in Melbourne of the latter being £12 12s. per ton. The scheme prepared shows that the whole of the profit is to be derived from acid manufacture, the gold recovered being a secondary item. A feature in connection with the scheme is the figures made use of by the promoters. They copy statistics from the Rio Tinto (Spain) Company's balance-sheet; although the year is not stated, one is left to judge that the 1894 report has been used.

It is urged that the Rio Tinto Company sold 485,441 tons pyrites during the year for sulphur, the net value received for which amounted to over £318,000, equal to 17s. 3d. per ton. That after deducting all cost of mining, shipping, &c., more than the whole of the available net profit (£158,913) on the company's operations for the year is more than accounted for by the sale of pyrites for sulphur. But for the sales to acid makers the copper production would have landed the company in a great loss. I leave this part of the subject for Mr. Hugh Matheson, of the Rio Tinto Company, to discuss with the promoters of the new venture, who show a great deal of crudeness in their arguments.

The first palpable error is in assuming that the Rio Tinto Company obtain 17s. 3d. per ton for pyrites. With very little enquiry the promoters could have ascertained that the cost of Spanish sulphur ore to English acid makers is something like 4d. per unit of sulphur, and taking the average test at 48 per cent., makes the price about 16s. per ton, which I believe is nearer the mark, in addition to which the promoters altogether ignore the fact that the ore contains from 2½ to 3 per cent. of copper and a small percentage of silver, which further reduces

the cost of the ore to acid makers. There is a danger of over-estimating the importance of pyrites for acid manufacture; there are already two acid works in existence in Victoria. Both makers use Sicilian brimstone, which can be laid down in Melbourne, a good rough quality having had one refinement and about 92 per cent. pure at a cost of £5 per ton. The acid production is about 4000 tons a year; there is none imported worth speaking of, while the present plants are capable of a larger output if the consumption warranted it. Another matter lost sight of is that English acid makers were driven to the use of pyrites because of the monopoly in Sicilian brimstone. The fresh sources of supply from Japan, New Zealand, and the Pacific Islands are more than likely to keep the price of the article steady between 55s. and 60s. per ton. At these prices, if the promoters would take the trouble to make themselves acquainted with Mr. W. H. Adams' tables of cost of manufacture of "stone" acid, discussed in Mr. Warnford Lock's new work on "Economic Mining," under the chapter "Pyrites," they would save themselves expense and bother in unsuccessfully seeking the aid of English capital to establish an unproductive industry.

It is a peculiar coincidence that at the very time a project is being launched to use auriferous pyrites for the purpose cited in this colony, English and American acid makers are making enquiries and sending experts out to examine the volcanic sulphur deposits on White Island (N.Z.); Vanua Lava on the Bank's group; and on Tanna in the New Hebrides.

The deposits on these islands are, to a large extent, chemically pure, and more than ample for local requirements for many generations to come, their origin being due to living solfataric action; there is a continual growth and renewal of the beds. What with the increased cost of sulphur mining in Sicily, and the solway-ammonia soda process becoming more general, leaving no secondary products in the shape of waste, we may assume that when the present supplies of waste are curtailed, extinguishing the manufacture of recovered sulphur, the volcanic deposits on the islands near to Australia will be eagerly sought after by capitalists. At the present it savours a smack of the ridiculous to find people seriously bent on seeking English capital to establish works for extracting sulphur from pyrites, when millions of tons of the native product—brimstone—may be obtained within 600-y of our shores, for the mere cost of mining and shipping. It is a silly proposal, and is to be hoped will be thrown overboard before it reaches home.

## OUR SOUTH AFRICAN LETTER.

(FROM OUR OWN CORRESPONDENT.)

JOHANNESBURG, JULY 5.

A VERY uneventful week has been this, and of company doings there is very little to report, if we except the annual meeting of the Treasury Gold Mines, whose prospects are said to be very promising, and the special meeting called on Monday last by the Wemmer Company, for the purpose of considering a proposal to acquire 11 claims from the Village Main Reef Gold Mining Company, to whom 25,000 fully paid £1 shares of the Wemmer Gold Mining Company were to be issued. This resolution was adopted unanimously.

Reckoning the Wemmer shares at their present quotation, I think that the Village Main Reef have done a very good business, and had the best of it.

The life of the Wemmer has been prolonged for another 15 years, at least, and the shareholders will, therefore, be sure to get their usual fatty dividends for some time to come.

The dulness of the share market has brought as a consequence a sort of relapse in property dealings, and the inactivity experienced during these last few days reminds us of the position of affairs two or three months ago. I do not find any good reason for such a state of things, and this uneasiness is due more to the work of speculators than to any rumours coming from the North, where matters now are brightening up a little.

For mining properties some transactions have occurred, but not exactly in the Rand, where West Rand properties especially are not exactly in demand just now, owing to the uncertainty of the existence of payable ground on certain properties, and to the poor assays obtained on certain others.

From Heidelberg we have always good news. Besides it being fashionable, the district will prove a second to the Rand.

Mining transactions have been very brisk indeed, properties have changed hands freely, and good prices have been paid for claims; some of these have fetched as high as £300 cash. Properties intersected by the Natal Railway will have a prompt supply of coal at their command; others having proved coal-bearing will have the advantage of using their own coal and supplying their neighbours too.

No doubt this district is going ahead rapidly; what is worth taking has already been secured. French representatives are buying quite eagerly, and especially in the Hex River way.

I have seen some samples and assays of same, whose average was 14 dwts. to the ton, and I felt convinced that in that special district any new mining venture must prove a success. All the information to hand convinces me more and more that if properly worked, with the experience afforded by the Rand, the Heidelberg district will be soon very busy.

On the line of farms from Duaspoort, Rietfontein, Tweefontein, Driefontein, some substantial work has been done by private enterprise, and I expect to see very soon some of these properties put upon the market.

I note also a certain revival in the Barberton district; this is attracting a little more attention than was the case only a fortnight ago. Several well known Randites are now there on business, and French interests are buying south of De Kaap. Good prices for option have been paid on several blocks of claims, and a certain property—La Madeleine—where work had been stopped, was bought by a French syndicate, and will be restarted.

Mr. Alexander Scott, the Rand stratigraphist, intends spending six months in Barberton district, and will report on properties down there.

Mr. Draper, the geologist, is leaving for England on pleasure and business bent. The Rand is losing them both for awhile, and will be deprived of their labours, but the still hidden mysteries and treasures of nature meanwhile will rest a bit.

The annual general meeting of the members of the North of England Institute of Mining and Mechanical Engineers will be held in the Wood Memorial Hall, Newcastle-upon-Tyne, at two o'clock to-day.

SOLDER FOR ALUMINIUM.—M. Glaze is said to have found a very simple solder for aluminium—namely, tin, with a little silver added. The solder is heated until it melts, and applied to the warm surfaces of the aluminium with a brush of aluminium wire; then the two surfaces of aluminium are pressed together. Defectless employs a solder of tin, 48 parts; zinc, 25; lead, 24; aluminium, 1; and chromium, 1 part. Bies-Albert uses one of zinc, 50 parts; tin, 28; aluminium, 9; nickel or silver, 7 parts.

## REVIEW.

Constructional Iron and Steel Work as Applied to Public, Private, and Domestic Buildings. By Francis Campin. (London: Crosby Lockwood and Son, 1895.)

This is a small book, addressed particularly to students of architecture and to architects, and deals with the use of iron and steel in the form of columns, stanchions, girders, &c., as used in modern architecture. It may be noted that the work does not profess to deal with that wider development of the subject, which has found its highest expression so far in America, in which the facade of important buildings may be constructed of cast iron, either in whole or in part, this substance taking the place of cut stone or some similar expensive ornamental material; it confines itself to the consideration of iron as used in the strictly-speaking constructional portion of the buildings, in which it carries the whole or great part of the loads which were formerly supported wholly by brick and timber work.

The general arrangements of the book is a good one. It deals, first, with the nature of the materials available, then with the forms in which cast iron is mainly employed, such, namely, as resist vertical pressure, or columns and stanchions, then with the forms in which wrought iron and steel are applied to advantage, these being chiefly solid and built-up girders. The mode of manufacture of these various elements and the methods by which they are connected together, their general disposition in buildings, and the stresses they have to bear, are next considered. Finally, we have chapters on the use of fire-proof doors and on the important subject of specifications and quantities.

Those parts of the subject that belong more strictly to the engineer and architect are very well worked out, and we notice with pleasure many thoroughly sound practical hints and suggestions, such as would only occur to one who had been actually engaged in carrying out the work he describes, and which are evidently the outcome of considerable experience. We are, however, surprised that the author does not make more use of the graphic method of calculating stresses. He, in fact, barely alludes to this method, although it is now very extensively employed by engineers engaged in girder work of all kinds, and ought certainly to be brought prominently to the notice of all students of this subject. On the other hand, the author never loses sight of commercial considerations, and gives these the prominence that they undoubtedly deserve in architectural work.

The book is weakest in the metallurgical portions, with which branch the author shows less familiarity, and he has, apparently, not the requisite amount of chemical knowledge, in consequence of which we find a good many imperfections in his treatment of this portion, which is by no means the least important, of his subject. Thus a bare statement of the limits of tensile strength in steel, without a word of reference to the manner in which these vary with the amounts of carbon present in it, is surely not enough for even a beginner. It is time that the old-fashioned method of talking of steel as if it were one substance, instead of being, as it really is, a generic name for a number of substances, with very widely different properties, were finally abandoned in text books. We also fancy that if the author understood steel better, he would lay less stress upon the value of wrought iron as a constructional material, and he would hardly have committed himself to the statement that the melting point of iron is much higher than that of steel. Even his statements respecting cast iron must be received with much caution; for instance, the old idea that "all cast-iron is improved by remelting up to 10 or 12 times, but after this remelting will diminish its strength," should not be repeated without the necessary qualifications; so much work has been done on this point, and it is now thoroughly understood, that there is no excuse for not stating the facts correctly.

Upon the whole, this is a useful little book, and would be far more so were it not for one cardinal defect, which in such a work is inexcusable. We have more than once had to point out how greatly the absence of scales detracts from the utility of illustrations in books of all kinds; this is above all the case in a book devoted to engineering matters, and it is incompressible to us how an engineer can publish drawings without scales attached. We cannot imagine that, when Mr. Campin makes drawings in his professional practice, he does not make them to scale, and does not indicate the scale upon them, and we cannot see why he should not take as much trouble for his readers as he would for his foreman. Throughout the book he is continually, and very rightly, urging the importance of extreme accuracy in constructional iron work, and then he runs counter to all his own teaching, and opens the door to the gravest inaccuracies by omitting to furnish his illustrations with either dimensions or scales.

THE SULPHIDE PROBLEM.—The specification of Mr. E. F. Turner, of the University of Adelaide, for a certain improved process for the regenerative treatment of argentiferous sulphide ore, has been filed, and is now open for inspection. Mr. Turner states that in his process the raw sulphide ore is disintegrated by the action of hydrochloric acid (HCl), resulting in the formation of metallic chlorides, which are subsequently fused and the metals recovered, and in the production of sulphuretted hydrogen, which is used as fuel, and the products of its combustion utilised for the production of fresh supplies of HCl. From the sulphuretted hydrogen so produced not only are fresh supplies of HCl obtained during the process by the treatment of sodium chloride with the sulphur dioxide (SO<sub>2</sub>) resulting from the use of the H<sub>2</sub>S as fuel, but also from the sodium chloride certain by-products in the form of caustic soda and other soda products are obtained. Portions of such products are used for the recovery of the metals from the aqueous chlorides obtained in the first part of the process, and any excess can be dealt with for commercial purposes.—Adelaide Observer.

GOLD MINING IN BUTTE.—Butte County is evidently receiving its share of the impetus gold mining is experiencing in California. Quartz, drift, and river mining are looking remarkably well, increasing in number of separate operations, in the number of men employed and the gold output. The latter has doubled in the last six years. Not the least promising feature of the advance is the permanence and prosperity of the quartz mines carrying their gold in sulphurets. This is the industry of the Forbestown district, where the success of the Gold Bank Mine has demonstrated the values that await capital and intelligence in the sulphuretted gold ores. In drift mining, also, Butte County has vast dormant possibilities. On the Magalla ridge there are miles of buried channels untouched and unprospected. This county is certainly promising enough to justify the expense of the comprehensive surveys and maps which in Placer and Nevada Counties have so materially aided the mine owners in locating the buried wealth of the ancient river.—Mining and Scientific Press.

It is reported that a certain Sri Jagat Guru, of Sringeri, who is a Guru, to whom a contemporary gives the title of "his Holiness," has discovered a ruby mine, valued at more than 40 lakhs of rupees, while certain of his fields were being worked. The matter having been reported to the Mysore Government, it is stated that the Government has placed the mine at the disposal of the Guru.



## THE CRISIS IN THE COAL TRADE.

## THE COLLIERY OWNERS' MANIFESTO.

THE following manifesto has been issued by the Derbyshire, Nottinghamshire, and Leicestershire Colliery Owners' Association:-

I am desired by the Federated Coalowners to make a statement upon the wages question in the federated area.

The amount of the collier's earnings depends upon the number of tons of coal which he may get per day or per week, as the rate upon which he is paid is a price per ton upon the quantity of mineral gotten. Thus it will be readily seen that a collier may have a high rate of wages, and yet, if the demand for coal falls, and little is being raised, his weekly earnings may be comparatively small. Plenty of work is of more importance to him than a high rate of wages. Although a high rate of wages does not necessarily secure to the collier larger earnings, it does seriously increase the cost of every ton of coal produced.

In the years 1888, 1889, and 1890 six advances, amounting in the aggregate to 40 per cent., were made in the colliers' wages. These advances were applied for by the miners on the ground that the selling prices of fuel had increased, and on that ground were conceded.

In the early part of 1891, the general trade of the country commenced to decline, and the coal industry with it, and in the month of June, 1893, the trade had become so unremunerative that the coal owners were compelled to ask for a reduction in the rate of wages. This was not conceded, and the Coal Strike of 1893 was the result. That disastrous strike was put an end to by the Rosebery Conference. It will be remembered that some time before the commencement of the strike, and again on several occasions during its continuance, the owners had offered to submit the matters in dispute to arbitration, but this offer had always been rejected by the miners. On the occasion of the Rosebery Conference, the owners agreed that the men should return to work at the old rate of wages, but this was upon the express condition that a conciliation board should be established for the settlement of future disputes as to wages, with an outside Chairman, who should have a casting vote. This was agreed to by the miners' representatives, and work was resumed. The board was constituted, to last for one year at least, with Lord Shand as the outside Chairman. In June, 1894, an application was made by the coalowners to the conciliation board for an alteration in the rate of wages. At a meeting of the board, the coalowners demonstrated that the circumstances entitled them to have a much larger reduction than 10 per cent., but as there were at that time indications of an improvement in the general trade of the country, an agreement was come to by the board that there should be an immediate reduction of 10 per cent. off the advances, that the wages should continue at that rate without any alteration on either side until the month of January, 1896, and that from January 1 to July 31, 1896, the board should be empowered to increase the wages to the extent of 15 per cent. above the reduced rate if such advance were demanded and justified by the men, and the board was continued until July 31, 1896.

Since July, 1894, there has undoubtedly been a considerable improvement in the general trade of the country, but not only has there been no improvement in the coal trade, but it is in a more depressed condition now than it was in the month of July, 1894, when the arrangement which expires at the end of this month was made. The average selling prices of fuel in the federated area have fallen very considerably since that arrangement was made—in some of the larger districts to the extent of between 16 and 17 per cent. The arrangement made by the conciliation board that the rate of wages should not be further reduced for a period of two years was an experiment, and it was hoped at the time that it would be mutually advantageous. Unfortunately, it has operated to the great disadvantage both of employers and workmen. The collieries within the Federated area have lost much of their trade to the other districts of the kingdom more favourably placed as regards wages, with the result that many mines, being unable to stand the cost of working, have been stopped, and the workpeople formerly engaged in them have been disbanded, whilst in those mines which have been continued at work the time made by the colliers has been only a few days per week, and the quantity of coal which they have been able to get has been correspondingly diminished. The effect of this state of things has been, and is, that although the men have had a high rate of wage maintained for them they have been receiving less money per week than they earned when the rate was less. Upon this point, a comparison of the Inspectors' reports for the years 1894 and 1895 shows that in the latter year there were fewer persons by nearly 5000 employed above and below ground in connection with coal mines than in the preceding year. The federated area represents roughly about two-fifths of the total output of the United Kingdom, but something over 4000 persons out of the 5000 were in the federated area. This does not represent the whole of the disadvantage to the workmen, as the returns take no account of the large number of men who are only partially employed. The employers, on the other hand, having to maintain large standing expenses at their collieries, whether at work or idle, the reduction in the output so increases the cost of the coal they actually get as to leave little if any margin between the cost and the selling price. I am informed by coalowners in each district that in the majority of cases there is no margin at all, and in very many cases a considerable loss. That this should be the state of things within the federated area is not surprising when the conditions as to wages in the district outside that area are considered. The collieries within the federated area have to compete with those in Northumberland and Durham, Scotland, and South Wales. In Scotland the wages are very little, if anything, above the rate of 1888. In Northumberland they are 16 per cent. above 1888, in Durham they are 12½ above 1888, and in South Wales 11½ above 1888, whilst in the federated area they remain 30 per cent. above 1888; and when it is remembered that the cost of labour in connection with the getting of coal and the putting it into wagons for sale represents between 67 and 70 per cent. of the entire cost of production, and that the collieries within the federated area have no advantage either in the quality of the fuel or the means of getting it, or of transport, above the other districts with which they have to compete, it will be seen how perfectly hopeless it is for the coalowners within the federated area to maintain their ground in competition with the other districts of the kingdom.

That they are not maintaining their ground is evidenced by the following figures, extracted from the Government Inspectors' returns:—In the federated districts the output of the year 1895, as compared with 1894, shows a decrease of over 2½ million tons, whilst the output in the districts outside the federated area has increased over 4,000,000 tons. During the year 1894 there was the Scotch strike, which no doubt improved to some extent the output in the federated area, as well as that in Northumberland and Durham and South Wales. In 1893 there was the strike in the federated area, so that that year would be of no use for comparative purposes. Comparing, however, the output in the year 1892 with that of 1895, the following is the result:—In the federated area there was less fuel produced in 1895 by over 1,000,000 tons, whilst in the districts outside the federated area the increase amounted to over 9,000,000 tons. By far the largest proportion of the increase has been in Scotland, where the lowest rate of wages prevails. The miners' representatives persistently repeat the statement that the coal trade is in a satisfactory condition, inasmuch as the annual output is constantly increasing; but I have not noticed that they call attention to the fact that the increase is in the districts outside the federated area, and that within the federated area the output is a decreasing one. I do not suggest that the wages in the districts outside the federated area are lower than they ought to be, for, as in some cases they have been settled by conciliation boards, and in other cases under sliding scale arrangements, they are more likely to represent the fair proportion which the wages ought, under existing circumstances, to bear to the total cost of production; but I invite attention to it as showing

ing that, without any compensating advantages, the effect of the present so-called minimum rate of wages is to impose a large additional cost upon every ton of coal produced within the federated area as compared with the outside districts. It should also be remembered that for the export trade, which forms a large proportion of the entire output of the kingdom, the districts both within and without the federated area have to compete with other countries raising coal, and if the export trade were to fall off it would place upon the home markets additional quantities of fuel, and thereby reduce prices.

The facts, as shown above, demonstrate the entire futility of the attempt to obtain a living wage for the men by an artificial maintenance of the rate of wages above that which the conditions of the trade will allow. The amount of the weekly wages earned may even be in the inverse ratio to the rate of wages. Mr. Pickard stated a few days ago that no man ought to go down the pit for less than 15s. 6d. per day. If he could successfully enforce this rate in any district, he would close every pit in that district, and this method of maintaining a living wage would leave the miner with no wages at all. The coalowners in the federated area claim that, in order to enable them to recover and maintain their trade, the rate of wages of the colliers in the federated area should be reduced. They regret that the loss of trade in the federated area, and the reduced output consequent upon it, make in many cases small wages for the men. They maintain, however, that this result has been brought about very largely, if not entirely, by the action of the miners themselves and their representatives in endeavouring to maintain a rate of wages for the federated area so largely in excess of the rate ruling in the competing districts. The miners' representatives cannot but admit the difficulty of the position, and in what way do they offer to contribute to its solution?

Their proposal is to make an agreement for two years, whereby the present rate of wages is to be maintained for the next 17 months, and then possibly to increase it for the remaining 7 months. They complain that the present low selling price is due entirely to the competition of the coalowners, and see no reason why the prices should not be raised to a remunerative point. What would be the effect of this? Notwithstanding the low selling prices which have ruled during the past two years, other districts have taken the trade from the federated area, and the coalowners are unable to understand how, if they cannot compete with the outside districts at present prices, they can more successfully do so at an increased price. The resolution which was passed by the Miners' Conference the day following the last meeting of the Conciliation Board was to the following effect:—"That this Conference deeply regrets the coalowners' refusal of the workmen's way out of the difficulty, seeing they had all to gain and nothing to lose, as the general trade of the country is gradually but surely improving, and we trust the coalowners will reconsider their decision." The workmen's way out of the difficulty would, in the opinion of the coalowners, increase the difficulty and not remove it; and the prospect suggested in the resolution of an improving trade which would enable the present rate of wages to be paid is not a sufficient inducement, after the experience of the last two years, to encourage the coalowners to bind themselves to a rate of wages which the present condition of the trade makes it impossible for them to pay, if they are to carry on their business to any commercial advantage. The coalowners' proposal, on the other hand, is to continue an arrangement which the miners and their representatives accepted at the Rosebery Conference without objection—namely, that the wages should, from time to time, be fixed by a Conciliation Board, consisting of an equal number of coalowners' and miners' representatives, with an outside Chairman possessing a casting vote. The board would, if so continued, have no additional powers beyond those which were conferred upon it with the cordial approbation of the miners at the Rosebery Conference. In deciding upon any application made to it for a reduction or an increase in the rate of wages, not only the reduced or increased selling price of fuel, as the case might be, but any other circumstances or facts could be laid before it for consideration in support of or against such application. The miners' representatives have frequently challenged the figures and other representations which have been made on behalf of the coalowners. The Conciliation Board would afford an opportunity such as could be obtained in no other way of enabling the miners and the public to test the correctness of these figures and representations. The existence of the board in 1894 did not prevent, but enabled, an arrangement to be made between the parties without the intervention of the outside Chairman, and there is nothing in its constitution which would prevent arrangements being made by the two sections of the board without the intervention of the outside Chairman in the future. It is much to be regretted that the miners' representatives have not, so far, been able to agree to continue the tribunal which they accepted at the Rosebery Conference, and upon them must rest the responsibility if the settlement of this wages question is rendered more difficult and more costly both to employers and workmen than, judging from past experience, would have been the case if the miners' representatives had accepted the proposals of the coalowners to continue the Conciliation Board.

Your obedient servant,  
THOS. RATCLIFFE ELLIS,  
Secretary to the Federated Coal Owners.

## TIN TICKETING.

THE fortnightly ticketing for tin ores was held at Tabb's Hotel, Redruth, on Tuesday. Results:—

		VALUES OF ORES SOLD BY EACH MINE.			
		Tons cwt.	Per ton.	£ s. d.	Value.
Dolcoath No. 1	14 0	37 5 0	521	10 0	
do No. 1a	14 0	37 0 0	518	0 0	
do No. 1b	12 0	37 0 0	444	0 0	
Carn Brea and Tincroft	16 0	34 2 6	546	0 0	
do	15 0	34 5 0	513	15 0	
do	1 5	14 0 0	17	10 0	
Wheal Grenville A	16 0	38 15 0	620	0 0	
do B	12 0	38 5 0	459	0 0	
Basset, Ltd. No. 1	20 0	38 17 6	777	10 0	
do No. 2	4 0	25 12 0	102	10 0	
East Pool A	8 0	24 15 0	198	0 0	
do B	7 0	24 10 0	171	10 0	
do No. 2	1 0	10 2 6	10	2 6	
West Kitty	13 0	39 2 6	508	12 6	
Phoenix United	10 0	37 10 0	375	0 0	
do No. 2	1 10	29 7 6	44	1 3	
Wheal Kitty	8 0	38 15 0	310	0 0	
South Condurow	6 0	38 15 0	232	10 0	
Ryan's Ore No. 1	15 10	42 15 0	662	12 6	
do No. 2	24 15	43 2 6	1067	6 10	
do No. 3	5 5	38 15 0	203	8 9	
	225 5		£8316	1 10	

AVERAGE PRICE PER TON, £35 10s. 2d.

		AVERAGE PRICES PER TON.	
		1895.	1896.
June 2	£35 4 9	July 14	£36 13 6
June 16	36 16 1	July 28	35 10 2
June 30	35 9 10		

		VALUES OF ORES PURCHASED BY EACH FIRM.	
		Tons.	£ s. d.
Carvedras	40 0	1441	1 3
Chyandour	50 0	1866	1 3
Williams	36 0	1416	15 0
Redruth	30 15	1173	6 3
Penpoll	8 0	198	0 0
Cornlab	60 10	2221	18 1
	225 5	£8316	1 10

## THE "WILD WEST COAST" OF TASMANIA.

By F. E. HARRIS, M.A.I.M.E., M.I.M. and M. London.

(Continued from page 948.)

STRAHAN, like most seaside places, with only a through traffic, is a trifle slow and lifeless. The wharf accommodation is very good, and steamers go alongside in deep water. One peculiar feature about the water of the harbour and of all the rivers is its very dark colour, caused by the peat and dense vegetation of ferns and other undergrowth through which all the streams run from their source until they reach the ocean. Strahan is divided into east and west, the latter situated about three-quarters of a mile away. The wharves and most of the business places are situated at East Strahan, but our hotel and most of the private residences are at the "West end." At the east the buildings are close up against the high cliffs, which almost reach the water's edge, and consequently there is not too much open ground. At the west, however, there is a nice expanse of level ground, and now as the dense forest and undergrowth is becoming cleared, the outlook from our hotel balcony over the harbour and the growing township, with the mountains in the distance, is exceedingly pretty, made more so by the fact that we experience what is a rarity in these parts—a fine day, with the sun shining brightly. All the houses are of wood, many of them tastefully planned and well built, with gardens well stocked with flowers and vegetables, while round about the township where the timber and scrub has been cleared, different kinds of English grasses, such as cocksfoot, Yorkshire fog, and clover grow to perfection. There is only a thin layer of peaty soil ranging from a few inches up to 3 or 4 feet, and on an average about 15 inches, over all this West Coast country, under which is found the country rock, but it is wonderful how all kinds of English vegetation flourishes wherever the scrub is cleared. The Pines is a fine three-storey building, and a good deal ahead of the present trade. It is well conducted, comfortable, and convenient, and far ahead of many large hotels I have stayed at in more accessible places where supplies are cheaper and more easily obtained.

The journey to Mount Lyell can be performed either by launch up the King River to the starting point of the railway, thence by rail for some 4 miles, the balance on foot or on horseback. We prefer the latter, and after a quiet Sunday leave Strahan at 9 A.M. on Monday morning, with our rugs, overcoats, and a change of underclothing on the saddles in front of us. Our horses are fairly good hacks, but as usual with livery stable horses in a rough and mountainous country have sore backs, and it does not add to the pleasure of a ride to know the poor brute you are on is in pain all the time. However, it is "Hobson's choice," and away we go. The road for the greater part is good old-fashioned corduroy, and, of course, uphill nearly all the way. It is just wide enough for a wagon, and frequently when we meet or overtake a team we have to dismount and lead our horses past, there being barely room to pass without risk of an accident. The cords are slippery from the constant rain, and as the road is for the greater distance out into the sides of the mountains, a false step would precipitate horse and rider scores of feet down among the huge logs and undergrowth.

About a mile and a half out we pass settlers. Here a great deal of timber has been burned and cleared in a rough way, and grasses sown. They are doing splendidly, as is also a fine young orchard, a good-sized strawberry patch, and the flowers and shrubs around the house are bright and healthy. The appearance of the whole place is good proof of what can be done by clearing and cultivation, and no doubt when the population of the mining towns increases to what it ultimately must do, we shall see many similar homesteads throughout the country. I noticed several button grass flats where, by a little judicious draining, splendid pastures could be formed. The button grass, which more resembles fine rushes than grass, grows on all the flat and marshy land hereabouts. It grows in large tussocks, the seed stems attaining a length very often of 5 or 6 feet with a hard round knob or button containing the seed at the end, hence the name. When several persons are following one another, stepping from tussock to tussock to avoid the bog, the ones behind have to be careful, as the heavy "nob" flies back after being disturbed by the person in front, and gives a very sharp and painful smack in the face if it happens to catch you there, so that it is literally a case of mind your eye.

Gradually ascending, we cannot but admire the magnificent timber, the fine views we get of the harbour, while a few miles away we catch glimpses of the ocean. The whole country is simply one mass of vegetation, but there is a great sameness about it, in fact, with the exception of a few spots, to see a mile or two is to see the whole district. We reach the 15-Mile about 1 p.m., commencing to feel a bit hungry. Here the road divides the new track going to the left and on to Queenstown, where the Mount Lyell smelters are erected, and thence to Mount Lyell, while the old one which we take follows the Queen River to the crossing. This 8 miles is, without exception, one of the most lovely rides imaginable. The narrow track cut into the sides of the mountains, which rise steeply from the river bed, winds in and out round the heads of gullies, over spurs, and at every turn reveals some fresh beauties. I had seen ferns growing in many places before, but never so luxuriantly as here. In every gully, for hundreds of feet below, and far up the mountain sides above us, were magnificent tree ferns by the thousand, while everywhere among the undergrowth, on the trees, and in every possible nook, were smaller ones of many different kinds, all growing to perfection, and of most beautiful and varied foliage. The huge myrtle and other trees were, many of them, covered with moss, while different coloured berries and flowers of various tints all tended to make as lovely a scene as one could imagine. Add to the many different shades of the foliage, a bright sunny day, and a gurgling stream every few yards, and very little more beautiful in Nature could be desired. More animal life would improve it, but of that there is very little in these parts, and one is struck with the great scarcity even of birds. There are few about, but they are very limited in number, and only seen, as a rule, along the rivers. The robins are very brilliant little fellows, but are exceedingly scarce. A few ducks are found in the rivers, and swans are numerous in the harbours, but, generally speaking, bird life is very scarce. The only animals are badgers and kangaroos, but they are found in very few places, and in very limited numbers.

As we proceed we occasionally get a glimpse of the earthworks of the railway, which follows the river bed below us, and hear the axes of the timber cutters as they clear the way for the iron horse.

At one point of our ride a cascade of beautiful clear water comes tumbling down from the hillside, and crossing the track loses itself among a forest of tree ferns beneath. This particular rivulet is known as the Sulphur Spring, as it is strongly impregnated with that mineral, and suggests a deposit of



sulphide ore in the vicinity. We try it, and find it not at all unpalatable, and it should be very good medicinally.

We reach the Queen Crossing about 3.30 p.m. feeling a bit stiff, as neither of us had done much riding of late. Here, in addition, to the usual "pub," butcher's shop, and store is a railway camp, and we learn that the earthworks will be finished in six weeks, and the line completed by the end of July. After a short rest, and leaving our horses at the hotel, we started off for a four miles walk to "Harris' Reward" Gold Mine (not your humble servant's bit known), our destination for the night.

"Waltzing Matilda" or "Humping Bluey," in the vernacular of the bush, and which, interpreted into ordinary English, means carrying swag, we started off over a track which the landlord of the hotel informed us was "not too bad." After going half-a-mile, however, we came to the conclusion that if this was "not too bad," we should like to see a sample of what was considered bad in these parts. The narrow track had been cut up by the unfortunate bullocks employed on the railway earthworks, wandering up and down it in search of a mouthful to eat, but finding nothing but ferns and scrub—and it is wonderful how they exist, and we were soon up to our knees in mud. In places the track was corduroyed, but the timber was rough and loose, and none too good to walk on. Added to the discomfort under foot, it commenced to rain, promising a good drenching, but this, fortunately, soon ceased after slightly damping us. The last half of the journey was better travelling, and about half a mile before reaching camp we crossed the King River. Here a cage is slung on a wire rope, by which one pulls himself over, and I elected to cross on this, my companion going in a small boat. The cage proved the most expeditious, though when one gets to the middle it looks a long way down to the swiftly moving water, and the thought occurs, "supposing the rope broke!" I suppose, after all, it would merely mean getting to "Kingdom Come" a little sooner, and for my own part I would rather risk a good rope than a small boat at any time.

Arrived at the mine, we lose no time in preparing our supper and making ourselves comfortable in the small huts erected for the manager and battery manager. These huts are built of "King Billy," which is one of the pines indigenous to the country, and which splits into splendid palings. After our meal we sit round a roaring fire of Huron pine, "swapping lies," until bed time, and the manager, being an old sailor, and one of the early diggers in Victoria and New Zealand, we hear some wondrous yarns of the early days of the gold fields. It seems almost a sin to burn the beautiful Huron pine wood, but it does not seem to be much valued on its native heath. The day will soon come, however, when it will be missed. So far we have been fortunate with the weather, and the night being cold and clear, we turn in, hoping for a continuance on the sunshine to-morrow.

The next morning we woke with the sun shining brightly and not a cloud in the sky—in fact, a perfect day. The air is so bright and clear that it reminds me of the winter days on the Barrier Ranges (Broken Hill), where I think the winter months are the most perfect weather in Australia. We spent the day examining the mine, and the neighbouring one, Mount Jukes, so called after the mountain under which both mines are situated, and by nightfall, after scrambling over fallen trees, ferns, and other obstructions, not to mention the wet under foot, are quite ready to turn in when the time comes round. The mine is picturesquely situated right under the shadow of Mount Jukes, and surrounded on all sides by high hills, while the Newell River rushes swiftly through the ground, the music of its waters being quite refreshing and pleasing to one's ears. It occurs to me what would be the value of this water if one could only transport it to the desert diggings of West Australia. Fancy such a stream through Coolgardie or Cue! No one who has not lived in dry countries, and learned its value by hard experience, can appreciate the true value of water, or conjure up such music as a rushing stream appears to give forth. To see all this beautiful water going to waste suggests the idea that Nature has not dealt out her blessings at all equally or fairly, and it brings back the memories of long years ago in the far away Northern Territory of South Australia, where I have many a time ridden stages of 100 miles without water under a tropical sun, and of the long, dry journeys in West Australia and Western New South Wales, where one never knew when he was going to get the next drink. Still, you can have too much of a good thing, even water, as living on the West Coast soon convinces one.

The following morning we returned to the Queen Crossing, and continued our journey to Mount Lyell. The distance by road is 8 miles, and a very rough 8 miles it is. As I ride considerably over 16 stone, I find it safer to walk up and down the steepest of the hills, especially as the track is narrow and in bad order. After proceeding a couple of miles light rain began to fall, and the wind rose to a strong gale, the weather being bitterly cold as we skirted the slopes of Mount Owen. Here and there a tree had fallen across the track, and with the wind blowing as it was one was never certain when another giant would come toppling down, which added quite a wild excitement to the ride. The views from here on a clear day must be very fine. On the right Mount Owen, which we are skirting, rears its high rugged peaks far above us, while in the distance on the left are Zeehan, Dundas, Heemskirk, &c., with the sea in the distance, mountains, and valleys all clothed—with the exception of the extreme tops of the highest hills, which are, as a rule, bare rock—with a dense growth of magnificent timber and undergrowth, the whole forming a fine picture of wild mountain scenery.

The township at Mount Lyell is named Gormanston, and with all due deference to the noble owner of that name, it is not a euphonious one. Why, I often wonder, will our Governments not adhere more to the native names which, as a rule, are exceedingly pretty, and mostly have some meaning relative to the place on which they are bestowed. Take, for instance, "Teapookana," the name of the settlement at which the Mount Lyell railway terminates on the King River. It is at once pleasing to the ear and appropriate to the place, as it is the native name for the kingfisher, which bird is found on these rivers. I suppose, in the usual course of things, that the next settlement in Victoria will be "Brassyton" or "Brassyville." It may be the correct thing to commemorate the names of our governors and leading citizens in this way, but it is not pleasing to one's sense of hearing in most instances.

However, Gormanston is prettily situated in a valley between Mounts Lyell and Owen, and, though at present it contains only a few houses, is destined in the near future to be a large and busy place. The larger settlement at present is at Queenstown, about 2 miles away, where the Mount Lyell Company is erecting its smelters, but it is not improbable that in course of a year or so the high saddle between the mine and reduction works will be tunnelled through, and some, if not all, of the latter brought on to the mine.

(To be continued.)

ACCORDING to the Perth Mining Journal, the water at the 300 feet level in the Great Boulder continues to flow freely, and difficulty is experienced in keeping it down. The main pumping shaft is nearly complete, and will be sunk to the 300 feet level for water as soon as the machinery is in position.

## MEETINGS OF MINING COMPANIES.

### COLENBRANDER'S MATABELELAND DEVELOPMENT COMPANY, LIMITED.

**A**N extraordinary general meeting of the shareholders in the Colenbrander's Matabeleland Development Company (Limited) was held on Monday, at the Cannon-street Hotel, Mr. C. C. CANNELL (Chairman of the company) presiding, for the following purposes:—(1) To lay before the shareholders the general position of the company; (2) to consider, and, if thought fit, to pass the following resolution:—"That the directors be and are hereby empowered to expend, whether in conjunction with other company's firms and individuals or otherwise, a sum not exceeding £5000, by way of aiding the British South Africa Company to suppress the revolt in Rhodesia."

The SECRETARY (Mr. J. Daria Pattullo) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—You have heard the notice read convening the meeting, and before passing the resolution, you will, I am sure, be interested to hear the general position of the company. You will doubtless remember this company was formed in July of last year, with a capital of £280,000, in shares of £1 each, of which 125,000 shares were offered for public subscription, and considerably over-applied for, and 60,000 shares were held in reserve, to be issued, if necessary, for additional working capital. 95,000 shares were paid to the vendors, together with £85,000 in cash, £60,000 of which was payable in cash or shares at the option of the directors. In view of the large subscription and the premium at which the shares then stood in the market, your directors elected to pay this £60,000 in cash. Some time after the company had gone to allotment we received an offer of 22s. 6d. per share for the unissued 60,000 shares, which, after mature deliberation, was accepted. It may interest you to learn that this offer was made by a group of gentlemen well versed in the value of the company's property. The company now owns 1040 mining claims in Matabeleland and Mashonaland, 110 of which have been acquired since the formation of the company; also over 52,000 acres of choice farm land, the greater part of which is in the immediate vicinity of Bulawayo, and adjoining the town commonage. Before the unfortunate rebellion of the natives took place development work was being pushed forward with the greatest vigour, and shafts and drives to a total aggregate depth of about 2500 feet had been sunk and driven with satisfactory results, and various contracts had been entered into to continue these developments to a very material extent. Needless to remark, these contracts have not been carried out. Our present financial position is this. We have £38,000 at our bankers and on loan here, and £50,000 invested in sound debentures and Government securities, thus making a total available balance of £88,000. Our securities were purchased after very serious deliberation, the position and prospect of each security being carefully enquired into; the return upon these securities will yield an average income of 5 per cent. per annum on the outlay. A full statement of accounts will be rendered at the ordinary general meeting, which will, in all probability, be held in about November next. A reliable engineer, Mr. Lawson, was sent out to assist the managing director early in the year, but, unfortunately, up to the present no use has been made of his services. £16,000 has been remitted to Bulawayo to carry on the development work of the company. Now I will pass to the resolution, and, before finally moving same, I should like to impress upon you that your directors are desirous to have your views expressed without restraint on the matter. This meeting was not convened without seriously considering the general unsatisfactory position of affairs now existing in Rhodesia, and they are strongly of opinion that it is a matter of expediency to assist the Chartered Company in some form or other in quelling this rebellion. It must be apparent to you all that the interests of the Chartered Company and its subsidiary companies are, to a certain extent, identical. What particular form this aid should take has not been thoroughly gone into. However, we have no intention of taking any steps whatever without the sanction and approval of the great majority of the shareholders, whose support and confidence we are anxious to obtain and retain, and with whom we wish to work with perfect harmony. I now formally move the resolution, and call upon my colleague, Mr. Dormer, to second it. Mr. Witt, who has joined the board since allotment took place, and who is also the representative of some of our largest shareholders, will, with your permission, also address you.

Mr. F. J. DORMER: Mr. Chairman and Gentlemen—I have much pleasure in seconding the resolution. When we convened this meeting I am sure we did not flatter ourselves that the resolution would prove acceptable to the general body of the shareholders until we had met you in general meeting assembled, and had explained to you the reasons which prompted us to put it before you. We could have done what we proposed to do without reference to any meeting of shareholders whatsoever. Our Memorandum of Association is a very wide one. Of course the primary objects of the company are to develop the properties which the company was formed to take over, but we can make such donations as may be directly or indirectly conducive to those primary objects, and generally we can subscribe, or we can guarantee, money for any public, general, or useful object. I do not think, therefore, gentlemen, it would have been *ultra vires* if we had determined to expend this money without any reference to a meeting of shareholders. I am quite sure it will not be *ultra vires* if we get from you that sanction which we hope to receive. (Hear, hear.) I say, gentlemen, we did not flatter ourselves that the resolution would prove acceptable to you until we had put forward the reasons which prompted us to propose it. First of all, I am quite sure a great many of you did not understand what the real financial position of the company was. I see that one gentleman, writing to the papers the other day, said he supposed that if this £5000 was expended it would exhaust all our resources, and liquidation or reconstruction would immediately follow. Well, you know that is not the state of the case. Some of the gentlemen who have written to us letters in opposition to this proposal have said that they could not vote for it, because our shares were not at par. Well, we cannot be held responsible for the fluctuations of the market. There are times when people are excited and over sanguine, and shares advance far beyond their intrinsic value. There are times when people are depressed and doubting, and shares recede far below their proper value. I think we are going through one of these latter periods now, at any rate so far as this company is concerned. It is true that your shares are under par; but you have cash assets, amounting to about 7s. per share; you have some very valuable landed property and mines in the neighbourhood of Bulawayo, which will probably be rendered more quickly available by what has taken place now than would have been the case if this rebellion had never occurred. You have an invaluable asset in the person of your managing director—(applause)—and I am sanguine enough to believe that if you will display enough confidence in us to adopt this resolution which we have put before you, the most valuable asset of them all will be this £5000 which we are asking you to expend. (Applause and laughter.) Whether that be so or not, we have not anticipated your sanction; we have come here to take your decision, and to that decision, let it be what it will, we shall most cheerfully bow. The vote of shareholders on a question such as this carries with it immense weight and influence, and I am quite ready to recognise that a resolution of this kind, if carried out merely by a board, without the sanction of their shareholders, would carry with it virtually no weight and influence at all. (Hear, hear.) I think it is probable that considerations have been present to our minds which have not been present to yours, and I propose to put some of those considerations before you, and then I shall be content to leave it for you to decide. There are two matters, however, upon which I think we ought at once to put ourselves right with you at the out-

set. The first is this. Some people say that instead of aiding the Chartered Company we ought to be suing them for damages. (Hear, hear.) Quite right. I want to tell you what we have done in that matter. Some months ago the Chartered Company announced that they would give compensation to anyone who had sustained loss or damage by this rising. I am quite certain that at that time they did not expect the rising to spread so far, or the bill was going to be so big; but they have not gone back on their word, and as they were generous enough to hold themselves responsible for the consequence of the rising, we should have been wanting in our duty to you, gentlemen, if we had not taken advantage of it. We, therefore, served upon them a notice that we would hold them responsible for any loss or damage that we might sustain. (Applause.) But I ask you whether our doing so should, of necessity, exclude the other step which we now ask you to take? The other matter I want to put ourselves right about is that the meeting had no sooner been convened than one of the leading organs of public opinion in this city said that the Chartered Company was sending round the hat. I lost no time personally in contradicting that, and I stand here to-day to conscientiously assure you that it was not called for anything of the kind. It was convened because we thought your interest would be promoted by holding the meeting, and that is why I am here to second the resolution to-day. The Chartered Company, so far as we know, do not acknowledge that they need any assistance from any extraneous source whatsoever. We may have different opinions on that subject; but let that be as it may, the idea was spontaneous, and we have had no communication with the Chartered Company either direct or indirect. We convened this meeting because we thought that the time had arrived for everybody who had any property or any interest at stake in Rhodesia to take counsel together and consider the situation which has now arisen in that country. I think we are all agreed that the sooner this rebellion is quelled the better. (Cheers.) Then I think if you agree to that, you must also agree that if we can render any aid at the present time, while we are not rendering that aid we are neglecting the opportunity of looking after our own interests. (Applause.) It is four months ago since this insurrection commenced. We were told that it would speedily be put down, but latterly you know every day things seem to have gone from bad to worse. The people who bore the brunt of the trouble at the beginning are worn out, and some of them are disgusted with this apathy of the people on this side whom they represent out there, and they are all going away as fast as they can get conveyances to carry them. At the present rate of progress, it seems that it will be a long time before the insurrection is put down. The Matabele are plainly avoiding the decisive issue which our commanders naturally want to bring on. It seems to be degenerating into a bush and cave business, in which all our advantages will be neutralised, and it will prove a very expensive business in time, money, and men. In view of these circumstances, I do not think any unbiased shareholder can say that the affair is none of ours. It is quite true that the Chartered Company do not hold out any signals of distress. I do not think they could do so without derogating from their duty to their shareholders even if they were at their last gasp. It is one thing for the Chartered Company to say that they do not require assistance, and another thing to refuse it when proffered; it is one thing to say that they will not accept assistance from one quarter under certain circumstances, and another to refuse it from another quarter when the situation is entirely changed. It seems to be forgotten under what conditions we and all the other subsidiary companies hold our properties out in Rhodesia. I will just read to you some of the conditions of the licences. We are to assist in the defence of the territories, or in the maintenance of public order when called upon to do so, and to obey without question all the decisions and directions of the company's officers, subject to forfeiture of such licence and any rights accruing therefrom; and the licensee promises, moreover, as follows:—"I hereby acknowledge the right of the company to remove me from the sphere of its operations if I resist or disobey such directions." I do not want to be a prophet of evil, or interfere with any other man's concerns, but I am a bit apprehensive as to what is going to happen next, and how our interests will be affected by it in Rhodesia. We are told by people with whom we have discussed this question that if anything happens, and if the Chartered Company say at length that the task is beyond their strength, the Imperial Government will step in, and a good job too. (Laughter and hear, hear.) That is the sentiment expressed in some quarters. Now, Mr. Chairman and gentlemen, I do not see my way. We have no guarantee that that is what will happen. We do not know that the Imperial Government will step in. I have lived long enough in South Africa—I have lived there over 20 years—to see many funny things happen there. I do not wish to say one word about politics beyond what is necessary to elucidate the resolution. I wish to remind you that there was a time when the British flag waved over the Transvaal and the Orange Free State. There was a time when we thought that our flag would wave over Delagoa Bay, over Swaziland, over German South Africa; but we have been disappointed there, and I am not so sure that the Imperial Government will step in if the Chartered Company should be compelled by force of circumstances to step out. If the country were to relapse into barbarism, where should we be? What would be the value of all our claims against the Chartered Company if the Chartered Company itself were to be driven to the wall? Besides, gentlemen, I do not think that it is to our interest that the Imperial Government should step in. Crown Colony Government has some advantages; but the rapid promotion of different forms of enterprise is not one of them. You will not find that the Imperial Government will step into the place of the Chartered Company without the holding of the property becoming very much more burdensome than it is now. You will not find the Imperial Government pressing on with railways at the rate of 2 miles a day. In my humble opinion, our best interest is to keep the millionaires there, and the millionaires have told us in many words that they will continue to maintain their interests in the rapid development of that country, so long as the country maintains its present form of Government. But they are not committed to manifest that interest in the same degree in the rapid development of the country for one day longer than that. (Hear, hear.) I think, gentlemen, that our interests are so bound up with the Chartered Company that it would be a calamity for us if the Chartered Company were to disappear from the scene. (Hear, hear.) One dissentient shareholder, who I see in this room—and I am very glad to me one day:—"If the Chartered Company need any assistance, why don't they avail themselves of the offer of the Transvaal?" (Laughter.) I am quite sure my honourable friend had not considered the matter in all its bearings. If the Chartered Company invoked the assistance of the Transvaal I have no doubt that the Boers would come over the Border—nay, they would go without invitation if white men were in any grave extremity there, and I dare say they would want their price. They would set up a new Republic—a sort of annexe to the Transvaal—and in the fulness of time that new Republic would be gobbled up and absorbed by the Transvaal. Is that what we want? (Cries of "No.") Is that a contingency that we ought to look forward to with any equanimity? So far the Chartered Company has had no aid whatever, except from the people in that country. Our own managing director has been rendering yeoman service. (Applause.) You must have seen by the papers that he has been in the thickest of the fray. One of our other directors—Mr. Phillips—who had lived nearly the whole of his life in Matabeleland, went out immediately he heard that the natives had become restless. His services would have been quite invaluable to the country at a time like this, but, unfortunately, he died on the way there, and his services were lost to the company and the cause. There is yet one other reason why I think it should be clear to us that it is to our interests that the Imperial Government should not step in; but that it is to our interests that the Chartered Company should be upheld, if we can uphold it. It is not an excited reason, but I mention it for the edification of the shareholders, who think whatever we do we should always keep our eye on the main chance. I will suppose the Chartered Company



would only be half a drop in the bucket—not a drop in the bucket.



Then we are told that it was expedient that we should put 500 men and arm them with a badge. (Laughter.) Then we are told again that if you only let Imperial troops come in, Heaven knows where you will all be. The Government will take away your rights, and take all your shares and everything else. These Matabele have said to the Mashona, "The British Queen has nothing to do with it, and if you do not come and help us we will smash you up." That is one of the very reasons why the Imperial troops will have to come forward. You must remember this—that if this matter got looked to, it will be nothing more nor less than the old Kafir war. This is certainly not the proper time to jump this thing upon us, and I think it most expedient to delay the business.

Mr. MURRY: There is an intermediate course, and that is to pay respect to the Chartered Company by lending it money, which could be returned when that company was in good feather again.

Mr. BAUMONT: I think all of us here—even those who have spoken in opposition to the motion of the board—must feel that very little argument has been given against the facts put forward by the Chairman as to the position of the company, and with reference to the very able speech Mr. Dormer has delivered in support of the resolution. Now, the present position seems to be this—that the opposition to this motion is somewhat half-hearted, and a suggestion is made that it is better to postpone the matter. *Bis dat qui cito dat.* If we wait we shall get somebody trading on the success of this meeting. We shall get somebody in front of us. Except for the statement given us by the Chairman that our financial position is such as to warrant £5000 being spent, I can quite understand you saying that we shall not part with a shilling. But we have to look at it from a common sense view of the case. Our interests are largely wrapped up with the Chartered Company. At present we have not the facts as to whether the Chartered Company have been to blame or not as to what has taken place, but we know our interests are wrapped up with the Chartered Company, and it is a matter of common-sense that in future, when subsidiary companies are brought out, those companies which come forward and say—rightly or wrongly—"We shall stick to our parent company," will gain by their action. I, therefore, hope that this resolution will be carried by an overwhelming majority.

The CHAIRMAN: I will ask the shareholder who proposed the resolution to postpone this question if he will withdraw it.

Mr. BAINES: I should like to take the sense of the meeting upon the matter.

The amendment was then put and lost, and the resolution carried by an overwhelming majority.

Mr. ORTCHER enquired whether counsel's opinion would be taken before the resolution was carried into effect.

The CHAIRMAN: We will do that.

Mr. ORTCHER: I beg to move that a poll be taken.

Mr. DORMER: Is it fully competent for any shareholder to demand a poll, but they intended to take counsel's opinion. In view of the unanimity of the meeting, he appealed to Mr. Orter to withdraw his demand for a poll.

Mr. ORTCHER then withdrew his demand, five shareholders not standing up to support it.

A vote of thanks was given to the Chairman, and the proceedings then terminated.

## THE WEST AUSTRALIAN (GOLD DISTRICT) TRADING SYNDICATE, LIMITED.

An extraordinary general meeting of this syndicate was held at Winchester House, Old Broad-street, E.C., on Monday last, under the presidency of Mr. H. L. GOODMAN.

The notice convening the meeting having been read,

The CHAIRMAN said: Gentlemen—I am very pleased to meet you again. As you are all aware, this is simply a confirmatory meeting. At our extraordinary meeting a fortnight ago, the reconstruction of our company was carried absolutely without a dissentient voice, and I have no reason to doubt that the same expression of confidence will be extended to us on the present occasion. Were I to confine myself to my strictly legal duty, I should simply have to put to you the same question as on the last occasion, and to take the sense of the meeting thereon, after which this proposed great corporation would be a *fait accompli*. But it has always been my principle (as I have more than once stated) to avail myself of every opportunity to take my shareholders into my confidence, for in common with my directors, our desire is that our shareholders should have the same information as we have ourselves, and moreover, that they should get such information at the earliest possible moment. (Hear, hear.) I know well enough that it is the practice with companies and corporations, not 100 miles from here, for the inner circle to keep a good thing to themselves, until such time as the early birds have caught their worms, and have made their own nest very snug and comfortable. But, gentlemen, that is utterly opposed to the principles upon which we act. I think that the plan of doing everything above board is the only course by which mutual trust and confidence can be engendered between directors on the one hand and the great investing public on the other. (Applause.) You may remember that at our first meeting I was in the position of declaring a dividend at the rate of 100 per cent. per annum; at our second meeting I was enabled to inform you that the business had increased so rapidly, and that our energetic agents in various trading centres had done so remarkably well, that we were already making at the rate of £85,000 per annum clear profit. In addition to this, we had secured the sole agencies of some of the best mercantile firms of the country, from Messrs. Bays and Co. downwards, which would be likely to produce another £50,000 annual profit; and I crowned the tale of our prosperity by the announcement that we had secured from the Ore Atomic Reduction Company the sole concession to use their process in the whole of the colony of Western Australia. It was upon these grounds that I advocated the recommendation of the directors that the capital should be increased to £500,000. I stated also that the remarkable concession which we had obtained might produce anything from £50,000 to £250,000 annually; but, even at the lowest estimate, we should, we hoped, from all sources of income, be able to declare a dividend of about 55 per cent. per annum upon the paid up portion of our new capital. Gentlemen, I now stand by all I said then, and am, further, in the proud position of proving to you by incontestable evidence that all that I have said is beyond cavil or doubt, for this process dispenses with the tremendous initial outlay which every mine has to make before it can return a penny in dividends to its shareholders. Now, in the first place, let me impress upon you that we are not a mining company, nor has our trading syndicate anything in common with a mining company, for it is entirely free from the speculative risks which are naturally attached to every mining enterprise. When a mining company gives its shareholders 20, 30, or 50 per cent., every prudent holder knows that his dividend does not belong to him. And why is this? Simply because the life of every mine is limited. It is born, it passes through its boyhood and manhood, and lives and dies in a period varying from 10 to 20 years; and no sensible man can blithely himself to the fact that the goose that lays the golden eggs must soon cease to cackle over her precious productions, and that he must every year put aside a large percentage of his profits to meet that fatal day when his mine must altogether disappear, for the greater the quantity of the ore that is raised, and the larger the dividends that are paid, the quicker the mine is exhausted. Not so with a trading company. Here we have a whole continent at our feet—a continent going ahead by leaps and bounds. We have no fear of exhausting this mine of wealth. The more depths we open, and the more managers we send out, it naturally follows that the more customers we shall get, the more ships we shall charter, and the cheaper shall we get our goods, by reason of the enormous orders which we can place. Only on Friday last, by the *s.s. Orient*, we sent away eight new managers to various centres, all of whom are not only energetic men of business in the prime of life, but also carefully instructed by specialists at our own expense

in the testing and assaying of every kind of metal. They have also been taught the thorough working of the Ore Atomic Reduction Process, the demonstration of which fairly astonished them; and before I conclude my address I will read some of the letters which I have received from them on the subject. Thus they go out as thorough workers and assayers able to instruct our other agents there in the same way, so that in a very short time the number of men able to use the process which we have obtained will be equal to the requirements of any number of mines, besides those who are already keenly competing to be the first to use our process. And now let me come to a very important part of my address to you to-day. I refer to the concession which we have purchased from the Ore Atomic Reduction Company. First of all, let me remove some natural doubts and questionings which must have suggested themselves to the mind of shareholders, and which I desire to meet with the incontestable evidence of hard facts. We are a trading company, and neither you nor I want to be fed on the un-satisfactory diet of surmises or probabilities. You want the logic of practical proof, and I am here to give you them, and I stake my reputation on the statement that no man of ordinary judgment and fair-mindedness will leave this room, after hearing what I have to say, without feeling convinced of the extraordinary value of the concession which we have obtained. I shall give you, not the views of the tipster, of the speculator, or the man in the street, who is always ready to tell you his a-dozen ways of making your fortune, although he is himself almost without boots. I shall not trouble you with the views of such authorities as these, but I shall bring under your notice the statements of gentlemen of the highest standing, whose verdict will command universal acceptance. Of course, we all know that when any great invention is introduced, there are dreams of people who come forward and say that it has been anticipated by them, but I think you will find that although each and every inventor may have had some one good point in his process, yet he failed to make it a practical success through the existence of some fatal defect which has entirely destroyed its value, and has caused it to die a speedy and unnatural death. Nevertheless, the moment that a new and great discovery like our atomic process is given to the world some of these antiquated corpses are galvanised into a semblance of life, and their obscure owners began to shriek out on their behalf. You can let all this noise pass you by, in the words of Shakespeare, "Like the idle wind which you respect not." Our process is free from anticipation, and its very simplicity guards it from infringement. Look at what the cyanide process has done for South Africa. In all probability 75 per cent. of the mines now paying splendid dividends would have been closed down but for the cyanide process, although cyanide was known for the last 80 years to dissolve gold. Perhaps we have as great or a greater surprise in store for mining men and others. The ore atomic reduction so prepares the ore that any of the well known methods for the recovery of gold can be applied to the disintegrated ore. If the cyanide or other wet process is used no trouble will be experienced in what is known as "leaching," as no times are produced, no matter what character of ore is treated, and if ordinary amalgamation be used the gold is in the best possible condition for the saving of mercury. We have obtained the services of Messrs. Hill and James, of Queen Victoria-street, who are patent agents of the first rank, whose researches have gone back for 200 years, and who can find nothing which could in any way invalidate our process. We hold also the legal opinions of such eminent counsel as Mr. J. Fletcher Moulton, Q.C., and Mr. W. R. Boufield, Q.C., M.P., who are, as you are aware, the highest authorities in their particular branch, which will fully confirm all statements of the patent agents as to the value of our process. We have obtained the views of scientific men of distinction and celebrity, who have made metallurgy their special study, and who have been struck, I may say, with the simplicity and completeness of our system. But, perhaps, gentlemen, the most satisfactory evidence which I can give you will be to read to you the letters which have been written to us by our trained engineers and assayers whom we sent out in a body to Australia on Friday last. The process was conducted under their eyes, and they were instructed in all its details. If, therefore, anyone were qualified to give an opinion it must be pre-eminently those who have seen the inmost working of the process. The Chairman then read letters from Mr. Tulloch, Mr. Paul Potter, and Mr. Clark, each of whom wrote in high terms of the invention. Continuing, the Chairman said:—To-day the value of our atomic process is not under discussion. I know the value of it, the mineowners know the value of it, the makers of crushing machinery know the value of it. My confidence in it has been shown, and my answer to detractors is this:—At our first statutory meeting I stated that my holding in this company was 6500 ordinary and the proportion of founders' shares; at the last meeting I said my holding was twice as large as that of any other shareholder, and to-day I say I have as many again. (Applause.) I have never sold or offered for sale a single share, either directly or indirectly, and I challenge anybody to disprove this statement. I will give £100 to every important hospital in London if anyone can stand up and prove that my veracity on this point is to be doubted. If that is not confidence in the company and in its most valuable asset—the ore atomic reduction process—I should like to know what is. (Hear, hear.) And here let me inform the Press that the West Australian Trading Syndicate has simply secured the concession for working the process throughout the whole of West Australia. We have nothing whatever to do with other countries. The advantage we possess lies in the fact that we have made the first deal. Within two months from to-day we shall be working this process in West Australia, and I venture to prophesy that in a very short space of time you will read a cablegram from the richest of the West Australian mines announcing a practical and successful result of such working. (Applause.) Within the last fortnight I have received many hundreds of letters, to some of which I have sent replies, and I must crave the indulgence of those whose communications have not been acknowledged. Press of business must be my excuse, and I can assure you it is a very sufficient one. Nearly all letters contained affectionate enquiries about the new ore atomic process, but as you may imagine, gentlemen, I hardly considered the time had come to satisfy their illegitimate curiosity. Now, gentlemen, I think I have explained to you as fully as possible the scope and objects of the new corporation. It is starting under the most favourable circumstances. Let us hope and trust success will attend its efforts. I can assure you that nothing will be wanting on the part of myself and my co-directors, who have worked so loyally with me up to the present, to attain this desirable end. I cannot sit down without saying that a great amount of praise is due to our managers and officials for the very heavy way in which they have thrown themselves into the work of the syndicate. At the last meeting I indicated to you the manner in which the capital of the new corporation is to be divided, and although numerous suggestions were made for altering those lines, upon mature reflection we have come to the unalterable opinion that we have decided upon the most practicable, fair, and workable method of dealing with the capital of the corporation. Some of the shareholders, like *Oliver Twist*, have asked for more, but we cannot give it them. We must have a large working capital; we must have a reserve. The finest engine ever made is absolutely valueless unless you have a supply of fuel to work it. I thank you for the very patient hearing you have given me, because I can conceive of a no more uninteresting subject than a dissertation upon figures. You have had substantial evidence of what can be done. You have had your dividends in the coin of the realm, and to those who desire to retain an investment at once safe and unique from the point of view of being a commercial undertaking yielding a return equal to that of some of the most successful speculative undertakings, all I can say is stick to your holdings. (Applause.)

Mr. T. K. BELLIS then proposed the confirmation of the following resolution:—"That it is desirable to reconstruct the company, and accordingly that the company be wound up voluntarily, and that liquidators be appointed for the purpose of such winding up."

Mr. H. GOSNELL seconded the resolution, which was carried with two dissentients.

Mr. DABSON moved:—"That the said liquidators be and they are

hereby authorised to consent to the registration of a new Limited company, to be registered with a Memorandum and Articles of Association, which have already been prepared with the privacy and approval of the directors of this company."

Mr. PULLBROOK seconded the resolution, which was carried unanimously.

Mr. CHARLES TAYLOR proposed the next resolution, as follows:—"That the draft agreement submitted to this meeting and expressed to be made between this company and its liquidators of the one part, and the said new company (limited) of the other part, be and the same is hereby approved, and that the said liquidators be and they are hereby authorised, pursuant to Section 31 of the Companies Act, 1862, to enter into an agreement with such new company (when incorporated) in the terms of the said draft, and to carry the same into effect with such (if any) modifications as they think expedient."

Mr. DABSON seconded the resolution, which was carried unanimously.

Mr. CLYDESDALE next proposed:—"That the remuneration of the directors of the West Australian (Gold District) Trading Syndicate (Limited) be the sum of 200 guineas each, and the Chairman 250 guineas; further, that the liquidators be awarded the sum of 50 guineas each." Gentlemen who conducted matters so successfully as the Chairman and his co-directors had managed the affairs of this syndicate fully deserve, the remuneration he was proposing that they should have. They might rest assured that the business of the company had been carried on on thoroughly sound principles. (Applause.) He, therefore, had much pleasure in moving the resolution.

Mr. GRANT seconded the proposition, which was carried unanimously.

Major-General TULLOCH proposed a vote of thanks to the managing director, Mr. Goodman, and remarked that he had been of great service to the board in the management of the company's affairs. (Applause.)

Colonel OGILVIE seconded the resolution, which was carried. The proceedings then terminated.

## MENZIES ALPHA LEASES, LIMITED.

The statutory meeting of the shareholders in the Menzies Alpha Leases (Limited) took place on Tuesday, at Winchester House, E.C., under the presidency of Mr. G. W. PAINTE.

The SECRETARY (Mr. J. G. COLDWELL) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—Although this meeting is a purely formal one, called in compliance with the provisions of the Public Companies Acts, I have no doubt you will be pleased to receive from the board the latest information with reference to the property we possess. As you are aware, this company, which was registered on April 10, 1896, is the offspring of two powerful West Australian Development companies, viz.:—The West Australian Gold Fields (Limited) and the Gold Estates of Australia (Limited). No prospectus was issued inviting subscriptions, but the particulars of the property and of its development were published for public information shortly after the registration of the company. All the capital issued has been fully subscribed privately; and 20,000 shares remain unissued as a reserve for further working capital, if and when required. Although reports received from the manager are sent to the Press for the information of our shareholders, I will now give you a short *resumé* of the developments so far as we have gone at present. The process of securing the legal transfer of the mining leases into the name of the company has, as usual, proved a lengthy one, but owing to the arrangements made with the vendors for taking over the property, this has in no way delayed the work of development. Upon reference to the map upon the wall, you will observe the shafts which, up to the present, have been sunk upon the property, the principal of which are the vertical shaft to the north-east, D shaft to the south-east, and the new vertical shaft to the south-west. Taking the shafts in this order, first, with a reference to the vertical shaft. At a depth of 60 feet a crosscut had been made, and a level extended from this crosscut south, upon a reef of nearly 12 inches of first-class stone. Upon April 29 last, a cable was received to the effect that this reef, at a distance of 180 feet from shaft, had opened out to a thickness of 1 foot, carrying splendid gold. In a report from our local director and manager, Mr. Deesley, dated April 30, he states that another small formation carrying a strong leader of quartz had been opened up in crosscut, which might open out when driven upon—D shaft. At a depth of 75 feet crosscuts have been run from this shaft for a considerable distance both east and west. In the west crosscut, at a distance of 80 feet from the shaft, a level has been extended for 23 feet upon a reef which is reported to be strong, averaging 2 feet. This reef is carrying little gold at the present time, but on April 4 it averaged, according to cable advice, 3 ounces to the ton. Our manager, Mr. Deesley, reports this is a fine reef, and beautiful stone; and a change in quality, which may take place at any moment, would mean a very big thing for the company.—New vertical shaft. Coming to the new vertical shaft, crosscuts have been made to the east at a depth of 60 feet, and to the north and south at a depth of 100 feet. The 60 feet crosscut has been driven a distance of 212 feet to date of last report. At a distance of 80 feet from the shaft, levels have been driven to the north (96 feet), and to the south (48 feet) from this crosscut, upon a reef which in the south level has varied from 8 inches to 1 foot. Two samples taken on different dates in April from this reef, and sent to an independent assayer, were certified to give results equal to 9 ounces 13 dwts. 3 grains and 7 ounces 12 dwts. per ton respectively. In the north level the reef is 1 foot 3 inches in width, but up to the present is not of such good quality, although good quality stone had shown on the hanging wall in the early part of May, when this level had been driven 30 feet. In this same crosscut, at a distance of 163 feet from the shaft, a formation of good monitic stone was met with 3 inches to 5 inches in width, assaying 1 ounce to 3 dwts. per ton. Levels are being driven here to prove this formation, and an air shaft has been sunk to bottom at this point, for the purpose of ventilating the workings. Further, we are advised that the ground continues so good in this crosscut that another reef may be cut at any time. In the second crosscut, at a depth of 100 feet, a vein was struck in March last 2 feet wide, showing visible free gold, and panning 5 ounces per ton. This reef afterwards pinched to 4 or 5 inches, but an assay taken from a sample at this time gave 5 ounces 19 dwts. per ton. A level has since been driven to the south from this crosscut for a distance of 34 feet. A winze has been sunk from this level for a depth of 31 feet upon the reef, but will not be further developed until additional facilities for hoisting are available. You will perceive that the reports that have reached the company from time to time upon these reefs have shown considerable variation in size, and, at times, in richness. Our manager advises us, however, that at such comparatively shallow depths much notice must not be paid to a reef pinching and making; they all do it, more or less, until one gets into settled country. The ground on these leases is precisely similar to that of the Lady Shenton (adjoining our northern block to the north-east) and to the Friday claims. This ground at times has proved very hard to work, causing the development to proceed at such times but slowly; but the fact of the reefs living and cutting through such hard rock speaks well for permanency at depth. You will observe that, as just stated, our northern block adjoins the Lady Shenton Mine to the south-west, and that, so far as can be judged from present developments, the Shenton lode should dip into our ground through our north-eastern boundary at depth. It is now contemplated to sink a main shaft on our northern block to cut this lode. The estimates of depth to be sunk to cut it, if the lode holds into our ground, have been various, but in our manager's opinion we should get the lode at about 350 feet. I think the company is to be congratulated in having secured for local director and business manager, a man of the tried ability and energy of Mr. Charles E. Deesley, the local manager to the Gold Estates of Australia (Limited). Also, that the work of development should be carried on under the supervision of Mr. Jowett, the



experienced engineer to the Menzies Gold Reefs Proprietary Company. It must be borne in mind also that this company commences operations under circumstances vastly superior to those of similar ventures in this district, of even only 12 months ago, the difficulties of transport and scarcity of labour being of a reducing quantity; whilst the water difficulty may be believed to have been entirely surmounted, so far as this district is concerned, by the opening of the supply of the Menzies Waterworks (Limited), which is now pumping water from Lake Barlee to the batteries at Menzies. I might here mention that the cost of transport from Coolgardie to Menzies has been reduced from £40 to £15 a ton. At the same time, the board are fully aware that so far as possible, they must conserve their natural supply, and some time back instructions were given for the selection of a site for the formation of a dam. Arrangements are now being made for the provision of adequate hoisting machinery; and I trust that in the near future the developments will prove, as we believe, that the company possesses one of the finest mining properties in the Menzies district. I should like to add that we received a telegram from our manager yesterday, extracts from which I will now read to you. It is dated Adelaide, July 27:—"The new vertical shaft south, bottom level, the total width (of the) formation is 30 feet, gold bearing; reef, 8 inches; value, 4 ounces. The winze is now down 34 feet; reef, 7 inches; value, 5 ounces; the ground at this point continues very hard. (In the) crosscut on the 60 feet level (level No. 1 south) the total width (of the) formation is 40 feet, gold bearing; reef, 10 inches; value, 5 ounces. The winze is now down 46 feet on pay shoot; reef, 8 inches; value, 4 ounces. Level No. 1 north, 80 feet shoot; reef, 1 foot inferior quality. Level No. 2 south, 40 feet (in); (in) reef, 6 inches; value, 2 ounces. Level No. 2 north the vein is well defined, but small (and) inferior quality. Level No. 3 south 20 feet (in); the vein is exceedingly irregular; value, 1 ounce. At D shaft, level No. 1, reef 2½ inches; value 5 dwts, per ton; the reef is very promising, but we have not met with any payable stone. We are surveying (for position of) new shaft, Shenton underlay." This is the latest information we have received. It is very pleasing to the directors, and I hope equally pleasing to the shareholders as well. I shall be happy to answer any question which you may put to me.

Replying to a SHAREHOLDER, Mr. W. LE PAGE said at present they were prospecting for the new Shenton shaft, which would take at least three months to sink 250 feet.

A vote of thanks to the Chairman and directors concluded the proceedings.

### MINES SELECTION COMPANY, LIMITED.

The first annual general meeting of the shareholders in the Mines Selection Company (Limited) was held at Winchester House, E.C., on Wednesday, Mr. WALTER MODERMOTT (Chairman of the company) presiding.

The SECRETARY (Mr. John S. P. Samborne) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—I presume that you will take the report and accounts as read. Our printed report is brief, and you will, perhaps, be desirous of knowing more in detail from me what your directors have done, what they are doing, and what they propose to do. As to what we have done, the accounts are, of course, a summary, but they represent the result only of a great deal of detail work. Since this company was registered, a rage for promotion companies having nearly similar objects has developed, and at no time previously has there been so great a demand for gold mines and gold prospects which could be worked to advantage, or sold to a profit. This multiplication of promotion companies has had a double effect; for while it has greatly facilitated the raising of capital for new enterprise, it has at the same time increased the competition for promising properties, and practically raised the market price of the same. Vendors of mines who have never been proverbial for modesty in valuing their properties are now more ready than ever to ask high prices for the right to prove if their own estimates and hopes are correct. Your directors are unable to free themselves from the old-fashioned mining tradition that values unproved, or not clearly indicated, are not worth purchasing at high prices. With such feelings as a guide it is not easy to secure favourable business. It is true there are no lack of offers of business, even in London. As an illustration, I may say that during the last six months we have had over 100 properties submitted to us here, and while only a small percentage required much investigation, the whole involved an expenditure of time and labour in reading and in interviews. Outside of such purely London work there are, of course, the numbers of schemes submitted to or examined by our agents abroad. That this more promising field abroad has not been neglected I can best show you by mentioning that we have had one of the board for the most part of the 12 months elapsed in Johannesburg, that we have had an agent continuously in West Australia, an engineer lately in America, and one of our directors has also been for half the time in the United States. In South Africa we were not very fortunate from one point of view. During the boom of last summer and autumn no new business could safely be taken up, and since then the troubles you all know of have not made matters easier. As we had particularly desired to operate in South Africa, it will be seen that circumstances have been unfavourable for us in our first year. Coming to our actual results, the accounts are, I think, sufficiently clear to you to require little explanation. We believe that the balance-sheet does not represent the final outcome of the work done during the 12 months, because our investments represent in most part the result of careful examination and selection based on our judgment of intrinsic merit. Market fluctuations in the case of such investments are unimportant comparatively, and a number of the shares we have purchased will, we believe, show in time results to justify their selection. We propose, as you will have seen from the report, the payment of a dividend of 5 per cent., and the resolution to carry this into effect will be submitted to you in due course. With a business like ours it does not seem at all desirable to your directors that the full profits shown by a profit and loss account should be divided; and the plan of starting a reserve in our first year, to provide for contingencies, and to make us feel more comfortable during temporary depressions of all sorts, seems so obviously proper that I trust no arguments in its favour will seem necessary. So much as to what we have done. Now, as to what we are doing. We are looking into everything offered us in London, as we have done in the past, so as not to miss the chance of occasional business. We have established friendly relations with some strong financial groups having similar objects to our own, and likely to prove of assistance to us hereafter by offering and accepting participation in new business. In America we now have an experienced and competent mining engineer in our sole employment, travelling through all the successful or promising mining districts. Owing to the vast increase in demand for experienced mine managers and careful mining engineers during the last two or three years, it is now quite a difficult matter to secure men of known ability and good judgment for such work as we require. We have been very fortunate in this respect, after quite a search for the right man. While we are employing this gentleman for the moment in America, we can use him in any other quarter of the globe, which may hereafter prove more attractive for business. One of your directors, Mr. Hall, who is well known in Australia, has taken up his residence in Melbourne, and we have asked him to retain his seat on the board, although resident abroad, because we believe he can be of assistance to us—as he, in fact, already has been—by attending to certain business and enquiries in Australia. Mr. Baylis, another of your directors, will probably continue to spend part of the year in Montana, and his presence in the United States is very useful to us. Lastly, as to what we propose to do. I can best state this briefly by saying we propose to do our best to make the company a success, but I refrain from venturing on any prophecy as to the extent of such success. I believe we have already established a limited reputation for playing a safe game, if not a brilliant one. If we come to you, the shareholders,

for assistance in floating any new mining enterprise, you may be certain it will be after most careful investigation into merits of the property, and with the belief that the risks incidental to mining are reduced to a minimum. You will have heard with regret of the death of our colleague, Mr. Myer Salaman, whose shrewd business knowledge was of much service to us in the past. We have been fortunate in securing Mr. F. W. Green to fill Mr. Salaman's place. Mr. Green has a very wide knowledge of men and companies relating to South African mining, and we are pleased to have secured his services for the company. Before putting the usual resolution to the meeting, adopting the directors' report and accounts, I shall be pleased to answer any questions of shareholders present to the best of my ability. (Applause.)

Mr. MERVYN KING thought the accounts were somewhat bare. He would like to know where the properties were, what was their market value, and when they would receive further information as to the progress of the company? The value was stated simply at cost, and they were not aware whether there was a large profit made on the concern or a loss.

The CHAIRMAN replied that in a company like this it was very difficult to make reports of a public character which would really be of any service to the shareholders. It was not advisable to give more details than they could help to thoroughly pos. the shareholders as to the position of the company. At the same time, the directors were perfectly willing to give the shareholders individually, on application, the fullest information they might desire. The result of the valuation of their assets was that if they had liquidated at market values there would have been £1100 more than was shown in the accounts. The Chairman then moved:—"That the report of the directors and the balance-sheet for the period ended June 30 be, and are hereby, received and adopted." (Applause.)

Mr. FRANCIS MUIR, in seconding the report, bore testimony to the great care and trouble which had been exercised by the managing directors in the conduct of the business. They might have taken up many properties and propositions, which might have shown larger profits on paper; but, as prudent men, they did not go into anything which they did not feel on a thorough examination would be likely to prove successful. (Applause.)

The motion was then put and carried unanimously. The CHAIRMAN next proposed:—"That a dividend of 5 per cent., free of income-tax, on the paid-up capital of the company be, and is hereby, declared payable to all shareholders on the register of the company on August 8, and that the books of the company be closed from August 8 to August 12, inclusive."

Mr. R. J. FRECHVILLE seconded the motion, which was also agreed to.

On the motion of Mr. DUFFIELD, Messrs. Cooper Brothers and Company were re-elected auditors, at a fee of 30 guineas, for the ensuing year.

A vote of thanks to the Chairman and directors closed the proceedings.

### WASSAU (GOLD COAST) MINING COMPANY, LIMITED.

The ordinary general meeting was held on Thursday, at Winchester House, Old Broad-street, E.C., Mr. F. SWANSY in the chair.

The SECRETARY (Mr. Charles S. Barnett) having read the notice convening the meeting.

The CHAIRMAN said: Before I refer to the balance-sheet and report I should like to say one word in reference to the absence of our Chairman, Dr. Bishop. I feel sure all those present will be extremely sorry that he is unable to be present to-day through ill-health. He has devoted many years to the work of this company, and he has always done it with efficiency and zeal. I will read you a letter I received from him yesterday:—"I deeply regret my inability to attend the annual meeting of the Wassau on the 30th inst., and I write to ask you, as my oldest colleague, to take my place as Chairman, and to make apologies for my absence. Though we are again not paying a dividend, the report must be gratifying to the shareholders as indicative of a near approach to decided prosperity." He adds a postscript with regard to his health, which is decidedly improving under the treatment he is now undergoing. Another point I should like to refer to is the loss we have sustained by the death of our late assistant-manager, Mr. W. E. Sam, jun. You agree with me that the loss of a man like him is a very serious one for this company. He had the greatest possible faith in the future of the company. He died, as you are aware, in the execution of his duty, through an accident in the mine, and I wish we had others like him to assist us in our work out there. You can quite imagine that Mr. Tom Sam and his father and his unfortunate widow have felt his loss very deeply. I now come to the report and accounts. With regard to the accounts there is not much to be said, except that a profit has been made for the year ended 1895 of £1793, as compared with a loss in the previous year. That is the main feature of it. Another satisfactory point is that the average yield of gold was higher than in the previous year, and that with so small an out-turn we were able to show a profit. The mine working account was reduced from £14,493 to under £12,000. As I said before, notwithstanding a smaller out-turn, we had a larger gold production than in the previous year. There is one item that is different from previous years—and that is, the question of debentures. It appears for the first time in the balance-sheet. You will agree with me that it is a much more satisfactory state of things than, instead of a large debt being outstanding to my firm, debentures should have been issued repayable in five years. Then, with regard to the assets, there has been an addition to the development account of £1596 19s. 9d. This is on account of the sinking of two shafts. Again, there is the Cinnamon Bippo development account, amounting to £2594 19s. 2d. We have a great deal to show for that item. A very considerable amount of work has been done at Adjah Bippo, and reports with regard to that mine are most encouraging. I congratulate the shareholders that they have a very valuable accession to their property in Cinnamon Bippo. As you are aware, the total cost of that property to this company was only £153. (Applause.) The report refers to the value of the gold. The average yield of the year was 1 ounce 4 dwts., being 2 dwts. more than in the previous year. In 1893 the yield was higher—1 ounce 12 dwts.—and I think it is undoubted that this year we shall have a yield more approximating to the yield of 1893. You have had the advices of the remittances up to the present time, and you will be pleased to hear that already we have advices of remittances for the first three weeks of July of 415 ounces. (Applause.) That is an extremely good return, and there is every prospect of the returns still further increasing. It may be asked, "How is it you treated so little ore this last year?" There were two causes for that. One is mentioned in the report—namely, the Ashanti expedition, which has affected our supply of labour. We had a number of Ashantis working at our mine, and these men naturally left us; but I am pleased to say that, with the settlement of that question, we hope to get more Ashantis, and as the country is opened out so the supply of labour will be improved. The other cause of the falling off was the accident to the pump in our principal shaft. That took place on June 5, but with regard to this the manager wrote to the governor: "We have doubled the steam and pumping power at each shaft at the present depth, ensuring continuance of developing work for some time to come." We have now got the Swansy shaft down to

within a comparatively few feet of the 250 feet level, where Mr. Sam will put in the Cornish pump, and that will drain the mine. Undoubtedly, it is everything to get your developments well ahead of your work, and I think I may say we have never been so well off as we are now in this respect. We have three shafts, the Swansy, the Cleaver, and the Bishop. The crosscuts from the latter two shafts have lately struck the lode, and in each of them it is most favourable, looking extremely well. We have practically more than ever we shall be able to develop. I have been connected with it for a good many years now, and I was never more confident as to its value than I am at the present time. Mr. Sam, in his report to the governor, made a mistake with regard to the acreage of our property. It is 1800 acres instead of 900 acres. In Adjah Bippo alone we have 680 acres. Prior to the starting of this company we were working on a vein of quartz that I believe one of these days will prove a very valuable vein indeed. We have on the property alluvial which I have no doubt will some of these days be turned to account. At Cinnamon Bippo three shafts have been sunk, and there are a number of adits. We are not losing time there. I do not think I need detain you any longer. I feel that my remarks have been very imperfect; but I should like before sitting down to refer to our greatest difficulty—that is, the question of transport. Mr. Sam referred to that in his report to the governor. He instanced how slow the transport was by stating that the mile and a quarter of steel rails that we sent out for conveying the ore from Cinnamon Bippo that arrived at Axim about seven months ago had not reached Bousah yet, and that it would be fully ten months before all arrived at the mines. You can understand what enormous difficulties we are labouring under when we have such delay with regard to the transport. The board will use every effort to induce the Government to do everything in its power with regard to this transport question. The Gold Coast never has a large surplus, but it has had a surplus every year, and it is only a reasonable and a proper thing for that Government to give us (say) a guarantee of £3000 or £4000 a-year for four or five years. With that amount there is no question about it the necessary capital would be forthcoming to make a light line from the River Ankroba, or even from the coast. This district will never be developed as it ought to be until we have some improvement in the means of communication. We have no decent roads; so that everything has to be carried through the bush by men. I congratulate you on the improved prospects of the property. I feel that the shareholders of this company have been particularly patient and indulgent to the board; but I feel that they have been so because they have known the difficulties we have laboured under. With regard to the question of climate, undoubtedly it is not as good as we should like; but there is no question about this—that European labourers can work there. At a neighbouring mine there is a staff of about 12 Europeans, and their health has been in every way satisfactory. If the men are well looked after, if they will be steady, and, above all, interested in their work, I feel confident that the day will come when this question of climate will be nothing like so serious a matter as it is very often supposed. A railway would undoubtedly improve the state of things in this respect. With those few remarks, I will conclude my address by moving the adoption of the report and accounts.

Mr. BAYLON, who seconded the motion, said the company was very much obliged to Messrs. Swansy for accepting the debentures at only 6 per cent. instead of calling for their debt.

In reply to questions, the CHAIRMAN said Mr. Sam's widow was provided for, and they were only married a very short time. At present the company had two Europeans working out there, and another was just starting for the mine.

The motion for the adoption of the report and accounts was then agreed to.

A resolution was carried unanimously, instructing the directors to apply for a Stock Exchange quotation.

The retiring director (Mr. W. Cleaver) and the auditors (Messrs. Ball, Baker, Deed, Cornish, and Co.) were re-elected, and the meeting terminated with a vote of thanks to the Chairman and directors.

### LONE RIDGE GOLD MINE, LIMITED.

The first ordinary general (statutory) meeting of the shareholders in the Lone Ridge Gold Mine (Limited) was held on Monday, at the Cannon-street Hotel, Mr. A. A. HUMPHREY presiding.

The SECRETARY (Mr. J. Durrie Pattallo) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—As you are probably aware, this meeting is called in order to comply with the requirements of the Companies Acts, and there are no accounts to lay before you. It is seldom usual on the occasion of the statutory meeting of a company that any report on the progress made is laid before the shareholders, but in our case we are rather more fortunate than the average run of mining companies. The property was transferred to the company on June 16, and work was started at once on the development of the mine. It has been going on very satisfactory ever since. By the latest reports we have from the general manager, a tunnel has been driven 180 feet, and has cut the reef. He has driven 50 feet on the reef, and telegraphs that it is very strong, and the ore is of good quality. He hopes that he will within a very short time be able to crush 50 tons of vein matter, as we are confident from what we know of the property that the result will be very satisfactory. It will, in any case, give us a much better idea of the reef than assays of small quantities. The result of the crushing will be reported to the shareholders as soon as it is received. I do not think there is anything more for me to say on this occasion, and I can only repeat that the work is being prosecuted with the utmost vigour, and the reports are very satisfactory.

A vote of thanks to the Chairman and directors concluded the meeting.

### LUIPAARD'S VLEI ESTATE AND GOLD MINING COMPANY (LIMITED).

The statutory meeting of the shareholders in the Luipaard's Vlei Estate and Gold Mining Company (Limited) took place on Wednesday, at the Cannon-street Hotel, when the Chairman (Mr. H. G. H. Norman) stated that it was the first meeting of the company since its reconstruction. The three directors of the old board had been joined by Mr. Alexander Davidson, and in due course another gentleman would be nominated to sit with them. Mr. White, a member of the local committee in Johannesburg, had reported very favourably on the 463 claims held by the company, and expressed the opinion that it would be advisable to sell a portion of the property. With this view the directors agreed, and they had had an offer to purchase the Battery Reef portion. The terms, however, were unsatisfactory, and the directors had decided to wait until good opportunity was afforded them of selling it outright. In regard to the crushing machinery, this matter was being carefully considered by the directors, who were anxious to secure the best possible process they were able to. In the meantime the development of the mine was being rapidly pushed forward. The working capital of the company was £70,000, but of that £40,000 was held in reserve. They had ample funds to place the company on a prosperous footing in a comparatively short space of time.—A vote of thanks to the Chairman terminated the meeting.



## POLBERRO MINE COMPANY.

An ordinary general meeting of the shareholders in the Polberro Mine Company was held yesterday, at the offices, No. 37, Walbrook, E.C., Mr. JOHN B. REYNOLDS presiding.

The SECRETARY (Mr. Frederick J. Harvey) read the notice convening the meeting.

The agent's report was as follows:—

I beg to report:—That the Pink lode is intersected in the Trevaunance engine shaft 14 fathoms below adit, 74 fathoms from surface. The shaft has been sunk below this level 70 fathoms on the line of the lode and pumping machinery fixed, which is quite capable of dealing with any quantity of water that may reasonably be expected. That the 14 fathom level east has been driven 25 fathoms on the course of the lode and 9 fathoms west. That the 26 fathom level east has been driven 70 fathoms, and west 22 fathoms on the course of the lode. The reports made from time to time during the progress of the above-named works will show that the lode and the character of the ground around it have improved at every level in going down, thus showing that there is every inducement to continue sinking the shaft and drive on the course of the lode deeper. A crosscut has been driven north at the 26 fathom level 70 fathoms, and intersected the Chappell's lode, South House lode, a rich run of tin branches, and new flat lode. Chappell's and South House lodes have been explored east and west several fathoms, and found to contain rich tin stuff. The new lode has been recently opened out upon and proved to be well defined, 3 feet wide, and producing rich tin stuff. This is an important discovery, as it has the same underlie and appearance as the champion lodes of the district. A crosscut has been driven north at the 50 fathom level 23 fathoms, and by continuing it about 13 fathoms further the new lode would be intersected. This would also prove the value of the rich run of branches driven through at the 26, and would in all probability open up a good section of tin ground. On May 23 last Mr. McCulloch contracted to sink the engine shaft 12 fathoms for £250, and then to commence the work and continue the same with two rock drills without intermission until completed, but I am sorry to say that in consequence of delay in getting the two rock drills to work, only about 3½ fathoms will have been sunk by the end of this week.

—JOHN HARPER.

The CHAIRMAN said: Gentlemen—Before I formally move the adoption of the accounts and report, I must express my deep disappointment and concern at the continued stagnation of Cornish mining generally, in consequence of the very low price we obtain for our tin. I did hope and expect that before this we should have had a favourable and substantial reaction, and I settled all my plans accordingly; but this favourable reaction has not come, and it would not be prudent for me to advise you to-day to any course of action in anticipation of a speedy recovery in the near future. As prudent business men, we must face the facts, and those of you who have done me the honour to read my recent utterances will, I think, be fully prepared for the decision to which I have arrived, and that is that I will be no party to raise a ton of tin anywhere, beyond that which one is compelled to raise, until such time as Cornish tin can be sold at a remunerative figure. (Hear, hear.) This being the case, as by far the largest shareholder in Polberro, I recommend you to-day to confirm such resolutions as were passed four months ago, involving the contraction of expenses to the lowest possible limits, which will necessitate a temporary suspension of operations on the mine, in order that the present shareholders may not be asked after to-day to pay any more calls in this company. We have spent on the united mines of Trevaunance and Polberro no less than £39,000, and to-day we must consider our exact position after having spent all that money. In the first place, let me say that I believe nearly all that money will be proved to have been judiciously expended. (Hear, hear.) The two considerable engine shafts, which we have sunk, are each of them in depth, as I am informed, about 30 fathoms from the rich West Kitty lode, which runs through our property, and in the Turnavore shaft we are supposed to be within a very short distance of the rich Pink lode, which turned out so profitable in the adjoining and other mines across the valley. With the results of operations round and about Enys's part you are all perfectly familiar, but since the last meeting of shareholders I regret to say that the work has been done so slowly as to call for my most serious remonstrance, and when I inform you that practically all the money, or nearly so, sanctioned to be spent at our last meeting of shareholders has been expended, and that the work for which it was sanctioned has not been completed, you will agree with me that I have cause for disappointment. In viewing our situation, I thought it right to take upon myself the responsibility of calling in a gentleman, who was unknown to me until very recently, except by repute, in order that he might make an exhaustive survey of the whole property, and report upon it, and especially with regard to the failure in the rock drill business since the work was ordered. In making my selection, I had to be careful to fix upon a gentleman who was well known, and whose opinion would carry weight in different parts of the country, as well as in Cornwall, and a gentleman whose decisions would not be seriously called in question. I decided that Captain Nancarrow, of Perranporth, would be as competent an expert as I could ask to accomplish the task, and when doing so, I became alive to the fact that he is by no means a sanguine man, and that he would probably tone down, and that very considerably, the very high expectations that some of us have indulged in, and still indulge in, with reference to this property. He has made a thorough survey, and is acquainted with all the facts, and I am sure you will be pleased that I have asked him to be present to-day to explain to you personally the position of affairs. The committee has kindly endorsed this morning my action in this matter, and I think in the future we shall have great cause for congratulation because of the step which has been taken. I must, however, submit to you, that in my judgment Captain Harper has faithfully discharged his duty to the shareholders since the death of Captain Charles Thomas. His position has certainly been most difficult, and if he has made mistakes (and I do not even hint that he has) I shall not be at all surprised, but I must say at once that it is imperative that a general manager should be appointed who can represent the company at the meetings of shareholders, and who will act with sufficient authority and decision on all matters which may come before him. The new company, which will be formed as soon as possible, will, however, I am quite sure, be only too glad to avail itself of Captain Harper's services in the same position as he occupied before the lamented death of Captain Charles Thomas; and pending the reconstruction of the company to Limited Liability, Captain Harper will take entire charge of all the company's property at an allowance of three guineas per month, and all the property will be perfectly safe in his keeping. The Duchy of Cornwall and Mr. Enys have, with their accustomed wish to do everything possible to facilitate our operations, pending the formation of the Limited company, consented to temporary suspension, and for this concession the thanks of the shareholders are due to them. Referring, again, to Captain Nancarrow's inspections and investigations, I do not think I shall be guilty of any breach of confidence if I tell you in brief what his private opinion is, as confided to me for my own personal guidance as your Chairman. He assures me in writing that our present prospects at Polberro are better than they were at West Kitty, just before we were fortunate enough to make that wonderful discovery which has already resulted in the distribution amongst the shareholders of £111,600. Gentlemen, if this is so, and there is not the slightest reason to doubt it, as far as I know, nothing I have said about the Polberro property generally has nearly approached the most favourable facts. When we consider that we have a property 1 mile in length, traversed by so many lodes of major and minor importance, and when we con-

sider the innumerable junctions which will probably be effected, and that already we know we have three flat lodes, one of which has been discovered since our last meeting of shareholders, presenting a most favourable appearance and of value, and that this new lode may probably have caught almost the full influence of the South House and Chappell's Downright lodes, which we expected would fall on the Pink—I say, when we consider all these things, no man in his senses can doubt our ability as shareholders to form a magnificent company with Limited Liability as soon as ever the state of the tin market will justify the movement. For that we must wait; it may be not for long, but whether it is for a longer or a shorter period it matters very little to those of us, who have an unalterable faith in the prospects before us. Our excellent member for the Mining Division, Mr. Strauss, is quite willing to do anything in his power to prevent even a temporary suspension of operations, but, gentlemen, this is a company, and Mr. Strauss is only one shareholder in it. We will avail ourselves of Mr. Strauss's willingness to assist, but not just at present. We shall ask for, and we shall have, Mr. Strauss's most cordial co-operation in the Limited company, and if any assurance of this fact was necessary, we have it in his consent to act on a small reconstruction committee, which we shall form to-day, to carry out the arrangements for the new Limited company. Whilst speaking of Mr. Strauss, perhaps he will allow me to tender to him the thanks of all mining men for the great endeavour he is making in Parliament to put Cornish mining on a better footing. If he succeeds, then the lords and shareholders alike may congratulate themselves on his success. To say that the present state of things as between lessors and lessees is unsatisfactory is indicating but very little as to the actual position. The fact is that legislation in the matter of mine leases has been imperatively called for for a long time. Mr. Martin, in his recent report, sounds a very clear note to this effect. I hope that note of warning will be heeded, and that Mr. Strauss will leave no stone unturned to accomplish the object which he has now before him in the interests of Cornish mining in the House of Commons. It is a good omen that he is so much respected, and so well supported there, and I am sure that wherever Mr. Strauss is, whether on the Metal Exchange or in the House of Commons, that he has one object before him, towards which he persistently aims, and that is the welfare of the constituency he so well represents. (Applause.) I now have very much pleasure in moving that the statement of accounts and agent's report be received and adopted.

Mr. STRAUSS, M.P., said he had much pleasure in seconding the resolution, and, at the same time, he wished to express to the Chairman his sincere thanks for the very kind expression to which he had just given utterance. He might add that the Bill to which the Chairman had referred, and which would give certain facilities for arbitration between lords and leaseholders, and also disputes between mines and mines, passed the second reading at half-past three that morning—(applause)—and he still entertained the hope that it would become law this Session. He had nothing to say as regarded the temporary suspension of the mine. He might, perhaps, on principle, differ with their Chairman on that score, but he fully and frankly admitted it was a question to be decided in the first instance by the Chairman, who knew the state of their finances better than he did, while he had also a greater interest than he (the speaker) had to see that no unnecessary expenses were incurred. Therefore, he bowed to his judgment when he recommended that certain operations should be suspended. But the principal question before them that day was that of converting the mine into a Limited Liability company. (Hear, hear.) Ever since he had been connected with Cornish mining, the Cost-book system had been considered almost too sacred to be talked about, but he had encouraged and done all that laid in his power to institute a change into the Limited Liability system. The advantages were so obvious that he was even now surprised that people should have tolerated for such a long time that antiquated system of unlimited liability. Under the new system they knew from the first what they would be called upon to pay. They knew the worst, which, to commercial men, was a very valuable thing to know. They knew they would not be asked to pay, and if the worst came to the worst, they could calculate to a penny what the loss would be. Of course, he knew there were many people who only looked at the profits and never looked at the risk. But the first calculation to men who had nothing to lose was what might they lose, and the Limited Liability system gives that security, which was absolutely necessary in order to bring capitalists in London and all parts of the country into Cornish mining. That was what Cornish mining had suffered from for such a long time. The Limited Liability system had been most successful in the few companies which had been converted or restarted. The conversion of Dolcoath, Wheal Bassett, South France, had been attended with great success, while the more recent conversion of Carn Broa and Tincroft had also been highly successful, and he wished with all his heart similar success to the Polberro Mining Company (Limited), when it commenced to exist. The only objection which he ever heard against the Limited Liability system was that there was the possibility that, just when they were near a lode or expected to strike a rich lode of tin, the capital might give out, and then they were unable to proceed any further. Well, he had watched a good many foreign mining companies, and he always found that when the capital did give out, as no doubt it did in many instances, some scheme of reconstruction was proposed, and the new capital was obtained, were the prospects anything like favourable. He thought that Polberro would never have occasion to reconstruct, but at the same time he merely made the remarks as an argument against those few shareholders, if there were any, who might still cling to the old system, and would not fall in with the new. The account before them that day, of course, spoke for themselves—they were as clear as possible, and he could only express his earnest hope that the time when the new company would be established might be very soon. (Hear, hear.) As the Chairman had said, it would greatly depend on the price of tin. He had always guarded himself from naming the time when the price of tin was likely to go up to such a point as would justify their starting the new company. It would be perfectly impossible for anybody to name with any accuracy the time when the improvement would take place; but that an improvement was justified, and would and must take place, he was as much convinced now as ever he was. (Applause.)

The CHAIRMAN said they were exceedingly obliged to Mr. Strauss for his statement. Mr. Strauss sympathised with him very much in his difficulties in the absence of a general manager. In fact, if one were not appointed, he could not remain in the position of Chairman any longer. We want a man who was a practical miner, and would secure universal confidence.

Mr. STRAUSS, M.P., then moved:—"That this meeting appoints Captain R. R. Nancarrow, general manager, all questions of remuneration for his services to be left to the committee of audit and finance." He was anxious to impress upon the shareholders the fact that the shareholders had appointed Captain Nancarrow, and, therefore, he would be responsible direct to them. His experience proved that it was highly desirable that the general manager of a mine should have a certain independence of spirit. Occasions might occur when he

would differ with the committee on certain matters. In such a case the manager could say he differed, and, being the servant of the shareholders, he would appeal to them. He much preferred to have an employee who had an opinion of his own, and whose position did not depend on the goodwill of the committee, but on the shareholders generally.

Mr. PAYNE seconded the resolution, and said he was very pleased to meet Captain Nancarrow there that day. He quite agreed they must have a general manager, and if the Captain would accept the post, from what he had heard, he believed he would be the right man in the right place. He seemed to be a man who would give them every satisfaction, as he was not an over-sanguine person.

Captain NANCARROW then read his report, which was as follows:—

Perranporth, R.S.O., Cornwall, July 28. J. B. Reynolds, Esq., 37, Walbrook, London.—Polberro Mine.—Dear Sir,—In accordance with your instructions, I have made a most careful, impartial, and thorough survey of this property. I have found it necessary to devote three days to the business, during which I have been fully occupied in examining the plans of the mine, and inspecting the underground works whenever possible, leaving no point of any importance, so far as I know, unvisited or overlooked. You are aware of the great extent of this property, being fully one mile in length on the line of the lodes, and it would be difficult to state its breadth, as practically you have an unlimited boundary north. The importance of this to your company I need not attempt to describe. Your agents having from time to time reported to you on the nature, position, and extent of the underground operations, and the same being indicated on your plans, I may assume that it is not necessary for me to refer to them in detail. I may, however, state that during recent years they have been confined to the ground around Enys's or Trevaunance's engine shaft, and in my opinion this work has been performed in a thoroughly miner-like way, and at present the mine is in a good working condition. The principal object has been the trial of the Pink lode, which in this district has yielded large quantities of tin. This lode has been opened on for the greatest length at the 26 fathom level, where it presents a remarkably fine appearance, being large, highly mineralised, and in places producing fine tin stuff. I was particularly struck with the large quantity of mundic in the lode at this level, which is generally regarded in this district as a good indication for the production of tin. I remember seeing at West Kitty a similar course of mundic which was driven through before the rich deposit of tin was discovered in that mine, only that at West Kitty was not equal in quantity or extent to the course seen in the 26 fathoms level at Polberro. Judging from analogy, there is, therefore, as you will see, good reason to expect similar results when this lode will have been more fully laid open in this mine. In order to prove this very interesting and important point I think the incline shaft should be sunk about 18 fathoms deeper than it is at present, and at that depth a lode should be driven east on the Pink lode under the run of mundic referred to. I advise this course for the following reasons, which I think will commend themselves to every intelligent and practical miner who knows this district:—1st. At about the depth indicated certain vertical tin branches, which in the upper part of the mine proved themselves to be feeders of the productive lodes, will drop into and form a junction with the Pink lode, and produce a combination of circumstances similar to those which have generally led to success in this district. 2nd. I am pleased to note that already an improvement has taken place in the character of the ground in the bottom of the shaft, as compared with that seen above. I was pleased to observe at my inspection yesterday that at the deepest point the rock was, in my opinion, more congenial for the production of tin than it was at either of my previous inspections, and I consider there is every reason to expect further improvement as depth is attained. I, therefore, most strongly advise the continuation of the incline shaft, as before stated. I would call your particular attention also to a new lode in the 26 fathom level crosscut north, which was cut through some time ago, and nothing further was done on it at that time. Since my first inspection, about three weeks ago, it has been operated on, and I am pleased to say that, as far as yet seen, the results have been very encouraging. It now shows itself to be a lode 3 feet wide, carrying a regular leader underlying north from 5 to 9 feet in a vertical fathom similar to the other productive lodes in this district, and yielding some very good stones of tin, a general sample of the stuff coming from it having, Captain Harper informs me, produced 30 lbs. of tin to the ton. This is a very important point, and should be vigorously prosecuted. You know, of course, that the West Kitty lode traverses the whole length of the east underneath the Pink lode, with which it probably forms a junction at a very moderate depth in your property, consequently I need only to state that in my judgment this greatly increases the prospective value of the mines. The Turnavore section of the mines, as you are aware, is full of water, and, therefore, I could not go underground in that part; but I was informed if operations were resumed in the bottom of that mine you would soon cut the Pink lode, judging from the plans, I think is highly probable. In my opinion this is worthy of attention; at the same length, perhaps, it may be left in abeyance until you have fuller light at the point to which I have referred. It would be almost impossible to enumerate all the lodes passing through this mining property, and the many favourable features it possesses. I must, therefore, content myself by stating that, in addition to the parts now in operation, there are other places which present excellent prospects, and that on the whole, in my opinion, the mine would justify the raising of a considerable amount of capital, which if judiciously laid out might, with a fair price for tin, reasonably be expected to result in satisfactory profits to the shareholders. From the foregoing it will be seen that any disappointment you may have had in the past affords no just cause for discouragement as to the future. In mining, as you are aware, before the desired object is reached frequently the executive and the shareholders suffer disappointment. As I have written privately to you, so I say here that in my judgment your prospects at Polberro are brighter than those seen at West Kitty before you struck the rich body of tin ground in this mine, and I think the present prospects of West Kitty will most favourably affect the proposed limited company in connection with the working of Polberro.—I am, dear Sir, yours faithfully, R. R. Nancarrow.

In supplementing the report, Captain NANCARROW said Polberro was not an ordinary mine, and it might, perhaps, not be out of place for him to remind them of two leading points. One was the sinking of the incline shaft, which at present was only about 8 fathoms or a little more below the 50. His reasons for impressing this point upon them were that a little below the present bottom of the shaft undoubtedly there was certain vertical branches of stone in mineralised ground, and they would drop into the Pink lode. Now, judging from the results he had seen following similar circumstances in other parts of the district, they had every reason to expect this would lead to a good discovery of tin. He was pleased to say that when he went down the mine last Monday already a favourable change had taken place. He never saw the bottom of the shaft look so kindly, and this strengthened his opinion and warranted him in recommending the further sinking of the shaft. The depth already obtained was, compared with West Kitty, their neighbour, very shallow. The main productive body of tin ore in West Kitty was below the depth of their shaft. The other point he wished to refer to was the new lode, which was certainly a very favourable feature, because in its nature it was very similar to other productive lodes in the district. It went down in new ground, and had all the elements of strength, and he thought it merited an exhaustive and vigorous trial. To his mind, they had a property which was second to none as an honest and good speculation. (Applause.) With reference to the resolution regarding his appointment, if they were in a position to start at once, he would have no difficulty in accepting the appointment, otherwise he should require his liberty to accept any other appointment that might be offered to him.

Replying to a SHAREHOLDER, Captain NANCARROW said the new lode was above the Pink lode.

Mr. WRIGHT asked whether Captain Nancarrow understood that his salary would not commence until the mine was reopened.

Captain NANCARROW replied in the affirmative.

Mr. WRIGHT said that showed that Captain Nancarrow had good faith in the mine.

Mr. GLASS said he was very pleased that Captain Nancarrow had agreed to accept the post. He knew his family very well, and they were all good miners. He thought it would be a mistake if they postponed the conversion of the company into a Limited Liability concern until the price of tin improved. The work should be carried out as quickly as possible.

The CHAIRMAN said Mr. Glass's point would be met by a resolution that would be proposed later on.

The resolution was carried.

The CHAIRMAN said since his statement was written Mr. Hancock had written that he had recommended the lords he represented to agree to a suspension—so that all the lords now agreed to their request. The next resolution he had to propose was this:—"2. That to meet the outlay



£900, sanctioned by the shareholders in meeting assembled on May 28 last, a call of 1s. per share on the shares of this company be and is hereby made, payable to the bankers of the company, Messrs. Bolitho, Williams, and Co. (Limited), late West Cornwall Bank, Truro, on or before Friday, August 14, 1896." In all probability, he said, this would be the last call they would make in that company. Supposing the call to have been paid, they stood in the unique position of being free from debt, while as assets they had the very valuable machinery and plant at the mine. He did not wish to have a large balance to hand over to the new company to pay, as he wanted to start it with a clean book. He quite agreed with Mr. Glass that they should push on with the Limited Liability scheme. Of course, it would be much easier to carry the scheme out if the mine was shut down. The water that would get into it could be pumped out within a month. Already the shareholders had paid into the coffers of the company £40,000, and that in all conscience was enough to prove the great future the Polberro property had before it. Therefore, no more calls would be made. Their immediate prospects were simply splendid, and the new company would enter into possession of a most valuable mine.

Mr. GATE seconded the resolution, and it was carried.

The CHAIRMAN next moved:—"That the best thanks of this meeting be and are hereby presented to the committee of audit and finance for their past services, and that the following do constitute such committee until the next general meeting of the company—viz., Mr. A. Strauss, M.P., the Hon. Ashley Ponsonby, C.C., Messrs. S. Payne, G. C. Hancock, C.C., F. W. Mitchell, N. B. Bullen, and Captains John Harper, Joel Hooper, and John Williams."

Mr. JACOBS seconded the resolution, and it was agreed to.

The CHAIRMAN said the next resolution was the important one, as it referred to the conversion of the company into the Limited Liability system.

Mr. GLASS moved:—"That pending the reconstruction of this company with Limited Liability the business of the company be curtailed within the narrowest possible limits, to obviate the necessity of any further calls on the Cost-book shareholders, and that the following gentlemen do constitute a reconstruction committee, with power to add to their number, to take steps when and as they deem proper, with a view to the settlement of a scheme with Limited Liability to be submitted to the present company, viz.:—Mr. A. Strauss, M.P.; the Honourable Ashley Ponsonby, C.C.; Messrs. S. Payne, T. Challis, W. H. Jacob, S. Payne, John B. Reynolds, and the secretary (convenor)."

Mr. WRIGHT seconded the resolution, and it was agreed to.

The CHAIRMAN said, pending the conversion, there would be some small expenses to meet. They must keep the office open, and the secretary and himself would be more busily engaged than they had been. There was also the rents of the leases—about £25—and other little items which had to be met. He, therefore, proposed:—"That to meet certain expenses (i.e., secretary's salary, office rent, Captain Harper's allowance for taking charge of the property on the mine, rents of leases, &c.), which will have to be incurred pending the reconstruction, and which will amount to about £220 per annum, the committee of audit and finance are requested to draw on the bankers of the company, with the understanding that the expenditure is to be kept within such limit." With regard to the details of the new scheme, he was thinking these out in his own mind, and had every reason to believe that they would meet with the approval, not only of the shareholders, but of the public as well.

Mr. FARWELL seconded the motion, which was carried.

Mr. WRIGHT, in moving a vote of thanks to the Chairman, said no fees had been drawn by any member of the committee.

Mr. JACOBS seconded the resolution, and it was carried with acclamation.

The CHAIRMAN briefly replied, and the meeting terminated.

## EAST POOL.

The periodical meeting of East Pool adventurers was held on the mine on Monday morning, Mr. BRANWELL, of Penlee, presiding.

The accounts showed labour costs, £442 19s. 3d.; Wheal Agar labour cost, £41 13s. 9d.; merchants' bills, £195 5s. 9d.; stationary assessment, £6 1s. 10d. The sales (111 tons 5 cwt. 3 qrs.) had realised £2785 13s. 6d., the average price being £25 0s. 8d. Arsenic sales, £3049 16s. 3d.; wolfram, £13 12s. 9d.; discounts, £56 16s. 9d.; carriage, £18 6s. 6d.; sundries, £2 16s. 1d.; total, £4927 1s. 10d.; showing a loss on the 16 weeks' working of £1458 5s.

The following is the agent's report:—

We have one stop working at the 140 fathom level west of engine shaft worth £12 per fathom. The 130 fathom level east is being driven by a boring machine, and is worth £10 per fathom; this end we expect soon to improve. The rise in the 100 fathom level is communicated with the 90 fathom level. We are driving a crosscut at this level by boring machine, with a hope of cutting the north part of the south lode. The 80 fathom level east of the south shaft is worth £5 per fathom. The 70 fathom level east of the south shaft is worth £3 per fathom. We are sinking a winze below this level, which is worth £10 per fathom. We have one stop in the bottom of the 50 fathom level worth £3 per fathom. We have two stops in the 70 fathom level worth £3 per fathom each. We have one stop in the 60 fathom level worth £3 per fathom.—Tribute. We have 13 pitches working by 35 men, average tribute 13s. 2d. in the £ for tin.—Charles F. Bishop, John Penhale, Samuel Curtis, John Bishop.

The CHAIRMAN said the account was the worst they had had for a very long time, but they would not be surprised, he supposed, at its contents. The tin stuff sent to the stamps in the last quarter amounted to 10,271 tons, or 49 tons more than in the preceding quarter; but against 37 lbs. per ton last quarter it now averaged 24 lbs., or 13 lbs. worse; and instead of selling 170 tons of tin they had only sold 111 tons, or a deficiency of 59 tons, and the amount realised was £2785, as against £4724. The reason for the very adverse state of things was that their best tin ground was all under water, and they were driven to the upper levels, which appeared to be continually getting worse. They would wish to know when this state of things was to end. He was scarcely in a position to tell. They knew that Wheal Agar people, with whom they had had a long controversy, were still unmanageable. If they had come to terms when first they agreed to refer to arbitration, there would have been some value in the East Pool Mine, possibly there might have been some in Wheal Agar, but to-day it was questionable if there was any value in either, as both were full of water. If Wheal Agar executive had been desirous of injuring East Pool, they have done it, but at the same time they have been doing themselves no good, because the value of the plant of Wheal Agar must be very much less, and there would also be the cost of forking the water, which by the perversity—he could say nothing else—of Wheal Agar executive had been allowed to rise in both mines. A considerable time ago a desire was manifested that they should name their arbitrator. They thought that was reasonable, and they named Captain Josiah Thomas. They asked Wheal Agar people to name their arbitrator, but to their astonishment they refused to name him before they signed the agreement, and so persistent was the refusal that East Pool committee believed there was something underlying it. (Hear, hear.) It was conceivable that they might name some gentleman, not of the standing of Captain Josiah Thomas, someone who would not be acceptable to the mining community at all, and that Captain Josiah Thomas and this gentleman might determine not to nominate an umpire at all. Under these circumstances the arbitrators or committees would have to apply to the Incorporated Law Society to name an umpire, and much mischief might arise to East Pool shareholders by an umpire being nominated not at all acquainted with Cornish mining. They thought it would

not do for them to sign the agreement until this arbitrator was named. From the first Wheal Agar executive had put a prohibitory price on their mine, and, having been obliged by public opinion to arbitrate, they were now endeavouring to make arbitration militate against East Pool shareholders. His own opinion was that the lord, Lord Robert, should step in and endeavour to effect a business arrangement in regard to these matters. He believed Lord Robert was unwilling to seem to do any wrong to anybody, but there must be a point at which he and the other lords would have to put their foot down and insist that business should prevail, and he believed that would have to be done in this case. The sett of Wheal Agar expired in a short time, but if they went on without forking everything would be getting worse, and of less value, and, therefore, he did hope that his lordship would endeavour to effect an arrangement in regard to Wheal Agar. Wheal Agar folks said at the outset that they wanted a little time to take breath, and so on. They had had that time, and people had been suffering. The employees of Wheal Agar had been discharged, and if they did not effect some arrangement East Pool would have to discharge hands too. They could not promise that there would be anything but loss on the next quarter, and the question was how long that could continue. He proposed the adoption of the accounts and the carrying of the loss of the debit of the reserve account.

Mr. WOOLCOCK seconded, and the motion was carried.

## BLUE HILLS.

A special meeting of shareholders in Blue Hills was held on the mine, St. Agnes, on Friday last week, in accordance with the resolution passed at the last meeting authorising the calling of a meeting at the expiration of two months.—Mr. W. PIKE (the purser) presided.

Captain J. RICHARDS, the manager, said that since the last meeting the 100 fathom level was driven to 6 fathoms in the first four weeks, and was suspended in order to put the men to rise towards the winze sinking below the 66. Communication had been made between the two points, and they had now thorough ventilation throughout the mine. Since the rise had been holed the men had been engaged in driving a short crosscut north and south of the 100 and in order to prove the main part of the lode. In the winze, 10½ fathoms below the level, they intersected the Straggles lode, which at the point of intersection was very good. On opening out on it, however, he regretted to say that it was not so good, although there was still tin there, and it might further improve. At the 80 fathom level they had commenced to sink a winze to the east of the first shoot of tin gone below that level, with a view of intersecting the tin and thus ascertaining its dip east. He would recommend sinking a winze to the east of the second shoot of tin in the same level, and for a similar purpose. There could hardly be any doubt but that these shoots of tin, which had been fallow for such a long distance, would still make in depth, but as their dip east varied, he could hardly say how far they are off from the 100 end, although he thought it could not be very far. He, therefore, strongly recommended them to prove the main part of the lode at the 100, and to drive east on the same; and to sink the two winzes below the 80, so as to prove how fast the tin was running east, and which, at the same time, would be laying open sections of stopping ground.

Mr. J. WICKETT asked how much it would cost to go on for another two months.

Captain RICHARDS said it would cost £320 a month.

The CHAIRMAN thought they had better not decide anything definite in the absence of the two largest shareholders in the mine, and suggested leaving the question of the future working to the committee, who represented two-thirds of the shares.

Captain RICHARDS mentioned that the lode they had come across was not the point they had been aiming at. That ought to be proved in another two or three months.

On the motion of Mr. JOHN MAYNE, seconded by Mr. HITCHENS, it was decided to leave the future working in the hands of the committee.

## THE AUSTRALIAN MINING COMPANY.

At the 51st annual general meeting of the Australian Mining Company, held at the Guildhall Tavern, on July 27, Mr. HENRY COLLIER in the chair.

The SECRETARY read the notice convening the meeting.

The minutes of the 50th annual general meeting were read and confirmed.

The directors submitted the following report for the year ending June 15:—

The arrears of rent due as shown in last year's report were	£	s.	d.
394	6	9	
The year's rent due March 25 last was	£2,500	5	11
Less temporary abatement	633	16	0
	1,866	9	11
The amount received by the company's agent to June 15, 1896, was	£2,260	16	8
	1598	4	9
Leaving due	£662	11	11

but how much of this has been allowed in consequence of poverty through destruction of crops by drought the directors do not know at present, the colonial agent not having been able to make up the usual statement in time for the mail which arrived yesterday.—Reedy Creek special survey, 20,000 acres. During the months of June, July, August, and September of last year nice rains fell, and crops looked promising; but the following six months, from October to March, were marked by an unprecedented drought, and, in consequence, the yield in grass and all crops was exceedingly deficient. The average yield of wheat in the districts round Palmer was from 2 to 5 bushels per acre, and in many parts was barely sufficient to supply the farmers with food for their families and seed for next year's crop. The price of hay and grain has been high as compared with the previous year, but our tenants, owing to short crops, have derived little benefit. The rainfall for April and May was good, and, as prices of agricultural produce keep up, there is ground for hope that the season next year may be more favourable. The increase of the mining industry in Western Australia has created a large demand for food supplies which Adelaide can profitably aid in furnishing, as Esperance Bay, which lies about 250 miles south of Coolgardie, with much mining country between, is nearer to Adelaide than any port in the other colonies.—Mining. The royalty received from the New Reedy Creek Gold Mining Company for ore raised during the six months to June 30, 1895, was £54 6s. 10d., being 2½ per cent. on a yield of 658 ounces 15 dwts. 6 grains, obtained from 5769 tons crushed (equal 2 dwts 7 grains per ton). The quantity of ore crushed in six months to December 31, 1895, was 4038 tons, yielding 474 ounces 16 dwts. (equal 2 dwts. 8 grains per ton). During the dry weather there was not sufficient water in the creek to work the stamps, and operations had to be suspended. The small return of gold per ton of ore treated is so unsatisfactory that the directors of the New Reedy Creek Gold Mining Company have been considering how to obtain improved machinery and appliances, which they are advised are necessary in order to secure all the gold which is contained in the ore, and negotiations are pending with a London company which it is hoped will lead to good results. Considering how much the farming tenants would suffer if the mining population were to leave the neighbourhood in consequence of mining being discontinued, our agent, Sir Samuel Davenport, has been authorised to make such arrangements as he thinks best for payment of royalties. Several important discoveries of gold have recently been made at Blumberg and Mount Pleasant, only a few miles distant from Reedy Creek Survey, and if the working of any of these is successful, it should encourage the New Reedy Creek Company to

persevere.—Creamery. This has been of great service to our tenants, from 300 to 400 gallons of milk being treated daily. With a view of helping Mr. Oppatt, who erected the creamery, a quarter of an acre of vacant land adjoining his own freehold has been made over to him to enable him to extend his works. Olive plantation has suffered from the long drought.—Palmer township. The gift of a small piece of ground by this company for the literary institute and reading room gave great satisfaction, but the bad times have prevented much progress as yet being made with the building. Charlton remains in the occupancy of Mr. A. B. Murray.—Funds. The cash account shows:—Balance in hand in London, June 15, £547 9s. 6d.; remittances received on account of rent and royalty collected, £1145; total, £1692 9s. 6d. The dividends and returns of capital unclaimed amount to £1121 18s. On August 1 next the directors propose to pay a dividend of 1s. per share, free of income-tax. The annual report of the directors, cash account, and balance-sheet having been taken as read, the following resolutions were proposed, seconded, and carried unanimously:—

"That the 51st annual report of the directors, balance-sheet, and cash account to June 15, 1896, be received and adopted."

"That Mr. Henry Collier and Mr. George Palmer be re-elected directors of the company."

"That 30 guineas be paid to the auditors for the past year."

"That Mr. Hugh Mackay Gordon and Mr. Arthur Edward Mylne be re-elected auditors of the company for the ensuing year, and that Mr. William Henley Dodgson, be elected auditor of the company for the ensuing year in the room of Mr. Thomas Smith, deceased."

"That the cordial thanks of this meeting be given to Sir Samuel Davenport, K.C.M.G., for the invaluable services which he renders to the company as agent in the colony."

"That the thanks of this meeting be given to the board of directors for their attention to the affairs of the company."

## ASSOCIATED SOUTHERN GOLD MINES (W.A.) LTD.

The first general, or statutory, meeting of the members of the Associated Southern Gold Mines (W.A.), Limited, was held on Thursday at Winchester House, Old Broad Street, E.C.: Mr. R. B. Tetley presiding.

The SECRETARY (Mr. E. F. Tremayne) having read the notice convening the meeting,

The CHAIRMAN said: Gentlemen,—I am very sorry to have to express an apology for the absence of the Chairman. He has been very seriously ill for some time, and is not able to be with us to-day. However, we have encouraging accounts of the state of his health, and we hope he will be at his duties again in the course of about a week. This is, as you know, the statutory meeting of the company, called in accordance with the Act. If we had been able to put off the meeting for another month or two we should have been in a very much more favourable position for giving you information. Usually there is very little of interest to say to the shareholders at such meetings, and this is no exception to that rule. We have only quite recently got possession of the property, and really there is not very much of interest to the shareholders to tell, so far as developments of the mine are concerned; but what little there is, of course, we shall be very happy to communicate to you. I think the last properties we only got possession of within the last month, and of course, until we do get possession of them, we cannot start on them with that energy and determination to do the best by them that we now intend to put into the matter. However, all the information which we have received about the property tends to make us believe they are a very valuable group of mines. No doubt the situation of the various leases will be fresh in your memories, as detailed on the map which accompanied the prospectus, and if judged from their position as shown on that map with regard to their contiguity to other mines of proved value, it would be evident that our properties might be expected to turn out to be mines of the first class. As regards the Great Southern Boulder, Monument, and Deborah Leases, which aggregate 178 acres, an important feature is that they have a series of very rich lodes and reefs, which run parallel with the Associated and Great Boulder lodes, but a little to the south-west of them. On these leases some of the richest stone seen on the field has been found, and the area being so large—178 acres—there is scope for the formation of several mining companies, preparatory to the formation of which it will be, no doubt, the policy of the board to develop, and further improve the properties. Not the least valuable feature in this group is the good supply of water, which was struck at 30 feet on the Monument Lease. Then as regards the Crescent Leases, which aggregate 54 acres and adjoin the Great Boulder Group, they are all being developed as speedily as possible. These leases are known by the names of the Crescent Extended and Crescent North. On the Crescent itself, besides a considerable amount of driving and cross-cutting, No. 1 shaft is sunk 110 feet; on the Crescent North No. 1 shaft was down 38 feet on June 16, and on the Crescent Extended the shaft was down 50 feet at the same date. Then, as regards the Nelson and Trafalgar lease of 18 acres, No. 1 shaft is down a considerable number of feet; but whether it is 90 feet or 100 feet we cannot quite make out. At the bottom a cross-cut has been driven, and in it a winze was down 22 feet, and the lode was 9 feet wide and panned a little free gold, which, however, was rather fine. No. 2 or underlay shaft was down 95 feet on June 6, and was being timbered. You will remember that we have the main reef of the Coolgardie Mint running through this lease. No doubt there are a great many gentlemen here who were shareholders in the Coolgardie Mint. I had the pleasure this morning of conversing with a gentleman who has lately been over it, and who speaks of it in the very highest terms. Then as to the Boulder Consolidated, which is a 24-acre block: it is in a most excellent position, being surrounded by well-known properties, and its development will have the most earnest attention of the board. A shaft sunk in a neighbouring mine, near our south-west corner, has struck water at the 100 feet level, and this is a hopeful sign for ourselves. Mr. George Gray says that the block is on the direct strike of the lode found in the Ivanhoe Central and other mines. Thus, you see that we have a total area of no less than 274 acres, situated in the heart of the Hannan's district, which district is probably the richest in gold of its size in the world. Besides gold in its most common form, it has lately been discovered here in the form of telluride of gold, some of it of amazing richness. Mr. George Gray, who has had great experience in goldfields in most parts of the world, says: "I have been in nearly all the countries of the world, and I have never seen better development than that which occurs at Hannan's." He added that he was not surprised at the discovery of telluride gold, because such wonders had been discovered on this field that one was almost prepared for anything. I was in Adelaide three years ago, and was asked to take a share in a small syndicate, with £150 capital, which proposed to send out two prospectors to Western Australia. As I was leaving for New Zealand, and was coming home, I did not, unfortunately, join the syndicate. The two gentlemen sent were they who pegged out the Great Boulder, the Lake View, the Ivanhoe, and the whole of the Associated mines, and one of them (Mr. W. G. Brookman) is one of your directors, but, unfortunately, has not been able to be with us just yet, though I think he will be here shortly. The properties pegged out by what I trust I may call the historic two were, undoubtedly, the means of bringing that district to the fore, and represent now some £5,460,000 sterling all in a short year out of £150. (Applause.) Surely, that is enough to fire the dulllest imagination, and to prepare us for almost anything. There is a cable in to-day's papers which refers to a mine not far distant from our Nelson and Trafalgar Lease, and which says that the property is simply wonderful in extent and richness. That, again, goes to show the amazing richness of the district. We have as our general manager and as our mining manager two of the most competent and most experienced men in Australia. They are neither of them men who would allow their imagination to override their judgment, and they have both reported on these properties most favourably, and they are now engaged in developing them. Before very long we hope to have some of them in so forward a state that we shall be justified in formally



them into independent companies. The policy of the board is the same as that pursued by the board of the Associated Company, and there is every reason to hope that this company will be as successful as that one has been. We have a very great advantage over the companies formed in earlier years, inasmuch as we can profit by the experience they have had to gain in a new field and under new conditions. We know how much better than they did in those early days what to do and what to expect, what machinery to order and where to get it, and we have also the very considerable advantage of getting all our machinery, stores, &c., delivered by railway within a very short distance of the mines. Formerly, these things cost sometimes as much as £100 per ton to be conveyed from the end of the railway at Southern Cross to the field. Now, the probability is it will be done at considerably less than that number of shillings. With plant, battery, boilers, and the whole thing complete, when you come to consider the great weight, you will at once see the enormous advantage which we have in saving of capital in the carriage alone. Besides that the conditions of life in that outlandish region are very much ameliorated. Every man can now get wholesome fresh food, instead of being compelled to live on tinned food. The saving of capital in the carriage of machinery is very important, and besides all this the development of the mines which is taking place on every side of us will indicate the course to be pursued in the development of our own, and will greatly increase their value. There is a scheme on foot for providing water from Hannan's Lake to supplement that derived from the mine, and we expect to participate in the advantages of that supply. The water supply has been the greatest problem that has had to be solved; but Mr. George Gray assures us that this scheme, which is devised by him, after consultation with the best hydraulic engineers, will give an abundant supply at a moderate cost in the driest of times. I may add that all our capital was subscribed, and we feel sure that it is ample for our purposes. There was a gentleman expected here to-day who has lately been over the whole of this field, and who is deeply interested in mining concerns in London, and he promised to give you the benefit of what he had seen there. However, for some reason, he does not appear to have turned up, I allude to Mr. Herbert Moir, who, as many of you know, is the managing director of Hannan's Proprietary. Therefore, I may be allowed to say that he has come back from the field, after a visit there with Mr. George Gray, fully convinced that there is the greatest possible future before the whole district. He has been through all the mines, and describes them in language of the most glowing character. To speak of one mine not so far away from some of ours, he says he could see the gold scattered about the wall in every direction, and the whole of the other properties with which he is connected are equally promising. I am very sorry he is not here to speak for himself; but I think what I have said is a summary of what he would have told you, and I must apologise for his absence. I think that is about all I have to tell you; but if any gentleman has any questions to ask I shall be happy to answer them.

On the motion of Mr. Jackson a vote of thanks was passed to the chairman, and the proceedings then terminated.

### CLARK'S CONSOLIDATED, LIMITED.

The first annual ordinary general meeting of the shareholders in Clark's Consolidated (Limited) was held yesterday, at Winchester House, Old Broad-street, E.C., under the presidency of the Right Hon. Lord WESTBURY, the Chairman of the company.

The SECRETARY (Mr. John Eastace) having read the notice convening the meeting,

The CHAIRMAN said the company was formed to acquire and develop 2452 mining claims and five farms aggregating 30,000 acres in the Gwanda district, but he wished to correct a clerical error which appeared in the prospectus. Mr. Jefferson Clark, who was the vendor, had only bargained, as he thought, to sell 1877 claims, whereas on the prospectus it was stated that they were purchasing 1977 claims from him. Of course, this error ought to have been discovered before by somebody, but the fact remained that it was not discovered until the claims came to be transferred. It was finally arranged, with the approval of the board, that Mr. Jefferson Clark should secure licences from the Chartered Company to enable this company to peg out anywhere they pleased 100 claims, so that the terms of the prospectus might be carried out. As soon as the transfer of the property was carried out the board, under the advice of Mr. Williams and Mr. Brand, gave orders that the most likely properties should be developed with a view of carrying out sub-locations in the future. A considerable amount of money was spent on these developments, and arrangements for sub-locations were under the consideration of the board when the present unhappy rebellion broke out in Rhodesia, and for the present all those operations had to be suspended. The company could not expect to get off scot free, and he felt certain they would have to meet considerable losses. The direct loss would be in connection with machinery, stores, and transport animals. Until the rebellion was put down it was quite impossible for the directors to know how far the company had suffered. They might console themselves, however, with the fact that nothing very serious could happen to their land and mining claims, which, after all, were the real assets of the company. All that the directors could do at the present moment was to play a waiting game, in the hope that brighter days would soon return. His Lordship quoted from a speech of Mr. Maguire, at a meeting of the Mashonaland Central Company, in which that gentleman said the Chartered Company would recompense the companies in Rhodesia for any direct loss they might suffer. Although Mr. Maguire was not at the present time a director of the Chartered Company, he did not think he would have made those remarks without a due sense of authority. As to the future, he did not think they ought to take too gloomy a view. Whether the rebellion was stamped out at once, or whether it lasted for several months longer, of one thing they might be quite certain, that sooner or later British supremacy and the peace which followed British rule would be established, and they would be enabled to resume the development of their mines and proceed with the intended location of their properties. There was another fact in connection with the rebellion which he thought would prove an advantage in the future. The troubles in Rhodesia, including the insurrection, had so disorganised all transport that the Chartered Company had at a certain necessity for providing better means of transport, and he believed the effect of this would be that the railroads would be pushed on with greater activity. The railway to Bulawayo from the South would pass through the Gwanda district, in which the five farms mentioned in the prospectus were situated, and where they also had 628 mining claims. The late Mr. Jefferson Clark, whose untimely death he was sure they all deplored, described in the prospectus this Gwanda property as being the most beautifully located, well watered, and good farming land with fine timber. When the railway, which would pass through that property, was completed, it would materially improve its value, besides enabling them to lay down machinery on their mines at a reasonable cost. He thought it would be satisfactory to the shareholders to know the present assets of the company. In the first place they owned 3080 mining claims. With the exception of 628, the claims of the Chartered Company had been settled. As they were aware, the Chartered Company was entitled by its charter to 50 per cent. of the profits arising from mining operations in Rhodesia. When this company was started by a grant of shares they discounted that profit, and all the profit that would accrue on the shares would come to this company. The 628 claims that had not been settled with by the Chartered Company were acquired from the Brand-Gray Syndicate. Then they had 30,000 acres in the Gwanda district, 100,000 acres in the Umali, 80 square miles in Northern Rhodesia with all mineral rights, coal farms to the extent of 175 square miles near the Zambezi, and a half share in two of 60,000 acres elsewhere. They also possessed a lime bed near Bulawayo which might possibly turn out a very valuable asset in the event of extensive building operations being taken in hand. Then they had 2300 shares in Williams'

Consolidated Buildings Company, which he hoped would turn out a valuable asset; an interest in conjunction with another company in certain options over farms in the Middleburg and Potchefstroom districts in the Transvaal, and 3050 shares in the Central Nigel Deep. Then they had in securities, which they could realise at a moment's notice, about £24,000, in addition to which they had £15,000 of unissued capital. The moment the board came face to face with the present difficulty in Matabeleland, they naturally began to think that it was time for them to stop all development work, and to incur nothing but absolutely necessary expenditure. They thought fit to take the lead in the matter of economy, and for the present they had determined to forego half the amount of fees to which they were entitled under the Articles of Association—that was to say, instead of receiving £1500 a year, they were only going to receive £750 until brighter days came. (Applause.) With the concurrence of the secretary, they had reduced the expenditure at the home office from £600 to £300 a year. They had also reduced the staff in Rhodesia to the lowest possible number. He was sorry that they had been obliged to terminate their agreement with Mr. Powell, who had been most zealous in the company's interest. The manager of the company, Mr. George Brand, had come home on half-pay, and for the present he would remain in England. With all these economies, the directors had succeeded in reducing the absolute expenditure both in Rhodesia and at home to the sum of about £3000 per annum, which he did not think anyone would think excessive. Turning to the balance-sheet, it would be observed that the total cost and development of the properties stood at £179,804. If their claims were valued at the moderate sum of £100 per claim, at which rate many claims in no better state of development than theirs had changed hands, they would represent alone a sum of £308,000; and if their land, of which they had 162,000 acres, were taken at the moderate value of 2s. 6d. per acre that would represent £20,250, making altogether £328,250, or 35 per cent. more than the total issued capital of the company. (Applause.) The directors hoped that a great many of their properties would turn out to be more valuable, but he thought they had put a moderate valuation on it. Under the head of general expenditure, the office and management expenses in South Africa appeared very high, but he wished to point out that a great many items had been included under the heading of office management that ought really to have been put separate under such a heading as general expenses. In conclusion, all he would say was that the directors would endeavour to discharge the duties committed to their care, and he hoped that when they next had the pleasure of meeting the shareholders he would have a more satisfactory statement to place before them. (Applause.) The Chairman then moved the adoption of the report and accounts.

Major S. WYNNE-FINCH seconded the motion.

Mr. ROBERT WILLIAMS (managing director in South Africa), in giving a summary of the developments and results obtained, compiled from the engineer's reports, said the total number of claims was 2980, covering an area of 80 miles. From August to March 651 claims, chiefly situated in Gwanda and the adjacent districts, had been worked. About 2500 feet had been sunk or driven, while 33 shafts had been sunk over 19 miles of reef and three adits driven, besides the usual large amount of trenching on the surface. The results obtained from developments on the Dandy reef showed an average width of 22 inches, giving an assay value of 36 dwts. Over 11 shafts in the Antelope, the reef had been cut at depths varying from 35 to 104 feet, and averaged 1 foot 6 inches in width, giving 14½ dwts. Of the Sybil and Mabel, Lockerbie, Marble, Parnell, and Doris blocks, the average width of the reef was 2 feet 10 inches, assay value 19 dwts. The Coburg reef was reported to be 22 inches wide, covered with visible gold. There were 150 claims, representing 4½ miles, on which nine shafts had not got below the old workings when work had to be abandoned on account of the rebellion. The Panhalanga gave almost the same low assays at or near the surface, which had been obtained from almost all properties on this range of mountains, but the recent strike on Jeffries Panhalanga, reported to be 23 feet wide at a depth of 478 feet, and averaging 1 ounce, would show that this reef improved in depth in Jeffries, and might do so in this company's ground. The intention of the directors was to quietly await developments in the adjoining properties. The Moreton Pinkney claims had so far proved valueless, and there was no prospect of improvement. From the details which he had given it would be seen that out of 19 miles on which work had been done, 10½ miles or over half had given a reef of an average width of 24 inches, with an average assay of 23 dwts, taken from 20 shafts sunk at regular intervals along the entire length. 4½ miles of reef had not been proved as the shafts had to be abandoned on account of the rebellion before getting below the old workings, and 4½ miles had proved so far valueless, but in the case of the Panhalanga there were reasonable grounds for hope. The company held 3750 shares in the Central Nigel Deep. This company owned 546 claims on the dip of the Nigel Reef, and if Mr. Hammond's prophecy as to the striking of the reefs turned out as correctly as in the case of Robinson Deep, then they would have a splendid profit on these shares. They also had options over large areas of land principally in the Middleburg district of the Transvaal, and boring operations were now in progress to prove what these were worth. It would be observed from Mr. Phillips' reports that these farms gave fair promise, although, of course, they were taken up by the directors as speculations at low prices, extending over periods of from six months to two years. The Williams' Consolidated Buildings Company, in which they held 2500 shares, held building sites in the most central position in Bulawayo and Salisbury; in the one case next the Stock Exchange, and in the other next the Post Office. The stands were put into the company at almost cost price, and the rest of the shares in the company represented cash, which was being utilised in the erection of a large block of offices. These offices would bring in a good return for the outlay, when prosperity returned to Rhodesia. Altogether, he thought the company had very good prospects. (Applause.)

Mr. GEORGE BRAND (the manager) said the Sybil and Mabel shaft was now down 76 feet, and the reef was 2 feet 6 inches wide, while the samples taken panned out to about 15 dwts. On the Marvel considerably more work had been done, and the reef was now 6 feet wide at a depth of 87 feet. The anol's had taken out at that depth about 4 feet on the hanging wall, and the ore panned about 15 dwts. On the Coburg they had struck the reef in the cross drive at 89 feet, and the reef was so rich that it was ridiculous to pan it.

The motion was then put and carried unanimously.

The auditors, Messrs. Chatteris, Nichols, and Co., were re-elected on the motion of Mr. LYNCH, seconded by Mr. R. WHITE, and the proceedings closed with a vote of thanks to the Chairman, directors, officers, and staff of the company.

### POORMAN GOLD MINES (LIMITED).

An extraordinary general meeting of the shareholders in the Poorman Gold Mines (Limited) was held on Wednesday, at Winchester House, E.C., when the Chairman (Mr. J. P. Bryon), in moving resolutions for the reconstruction of the company, explained that unfortunately the stopes had broken through in the old workings, with the result that the mine had been flooded. However, they immediately proceeded to cope with the difficulty, with the result that the mine was now in a good condition, and was paying well. But in order to place them on a thoroughly sound footing more money was required, and under the proposed scheme it was proposed to issue the shares with a liability of 6s., although at present only 1s. 1d. per share would be called up. This would leave them, after paying the expenses of the reconstruction and a small debt of £200, about £4500 to expend on further development work. Nearly all this would be paid away for labour, as they had plenty of fuel and mining timber. They might want a hoist, which would cost £150. The resolutions were seconded, and the meeting concluded with a vote of thanks to the Chairman.

### CARIBOO GOLD FIELDS (LIMITED).

The annual general meeting of the shareholders in the Cariboo Gold Fields (Limited) was held on Monday, at Winchester House, E.C., when Mr. Robert M. Meyer, who presided, in moving the adoption of the report and accounts, explained that considerable delay had occurred in the development of the property, in consequence of the heavy freightage demanded for conveying the plant from the coast to Barkerville. However, the question had now been satisfactorily settled. While waiting for the pipe line, which is to convey the gravel from the mine to a convenient dump ground, they had turned their attention to dealing with the immense quantity of water in such a way as would prevent floods in the future. Bearing in mind the fact that the mine was not yet paying the directors had taken no fees, while the other expenses had also been cut down. With regard to the "Eye Opener" claim, the quality of gold already obtained led them to believe that it would prove a very valuable one when worked to the fullest extent. The directors had also taken steps to secure a number of other claims, so that in the event of a boom taking place in British Columbia they would be in the position of a parent company.—Mr. Ernest Collins seconded the resolution, which was carried unanimously.—The auditors, Messrs. Clarke, Battams, and Co., were re-elected, and the meeting concluded with a vote of thanks to the Chairman and directors.

### CENTRAL NIGEL DEEP (LIMITED).

The first annual ordinary general meeting of shareholders in the Central Nigel Deep (Limited) was held at the offices of the Consolidated Gold Fields, on Monday, June 8, when there were present Messrs. E. Birkenroth (Chairman), H. Walters, and J. Durham.—The secretary (Mr. D. Ristoul) read the notice convening the meeting and the directors' report, already published in the *Standard and Diggers' News*. The statement of accounts, duly audited, was laid upon the table and taken as read.—The Chairman, in formally moving the adoption of the report and balance-sheet, observed that he had nothing to add. The company was in the initial stage of development. Shaft sinking was proceeding as satisfactorily as could be expected, he was pleased to say, seeing that there are always drawbacks to mining, particularly in the Nigel district.—Mr. Durham seconded the resolution, which was agreed to.—Major Sapse was elected a director in place of Mr. George Richards, resigned, and Mr. J. H. Hammond was re-elected.—The appointment of Mr. H. Walters as a director was confirmed.—The auditors, Messrs. T. Douglas and J. Bottomley, were re-elected, their remuneration being fixed at £15 15s. each.—A vote of thanks to the Chairman brought the meeting to a conclusion.

### LAGUNAS NITRATE COMPANY (LIMITED).

An extraordinary general meeting of the shareholders in the Llagunas Nitrate Company (Limited) was held on Wednesday, at the Cannon-street Hotel, Mr. Henry W. Lowe presiding.—The Chairman stated that at a former meeting pressure was brought upon the board to bring new blood upon the directorate, and he and others were appointed in that capacity. They had sifted all matters, and had digged down to the foundations upon which the company was built. A report had been presented to the shareholders as the result of their investigations. Having taken advice, it was advised to take proceedings against the syndicate, the original directors of the company. The key to the whole matter was found in the fact that the vendors of the property and the original directors were the same parties, and consequently acted in a dual capacity. He urged that there was a strong case for investigation, and went on to accuse the late Colonel North and others of misrepresentations in the prospectus. At this there was considerable interruption. The Chairman declined to withdraw his statement, and moved a long series of resolutions to the effect that the board be authorised to continue the action commenced against the Llagunas Syndicate (Limited), 1889, and its liquidators, and reposing no longer confidence in the former directors of the company; also that the board be authorised to employ agents to proceed to Chili or to remain in England, for the purpose of elucidating the accounts and position of the company. The resolutions having been seconded, a further discussion ensued.—Mr. Robert Harvey, an original director, made a speech, in the course of which he emphatically denied any misrepresentation, and warned the shareholders against entering upon a lawsuit.—Eventually the resolutions submitted by the directors were carried by a large majority.

### EMERALD (REWARD) GOLD MINING COMPANY (LIMITED).

An extraordinary general meeting of the shareholders in the Emerald (Reward) Gold Mining Company (Limited) was held on Thursday, at Winchester House, E.C., Mr. Thomas Pyke presiding.—The meeting had been requisitioned by certain shareholders for the purpose of considering a resolution, the object of which was to reduce the directors' fees.—Mr. James Smith, in moving that the directors' fees be reduced from £500 to £50 a year, said during the last nine months all the directors had had to do was to sit in their chair and read the occasional reports received from the manager. Mr. Penberthy had always the same miserable tale to tell—namely, that no payable reef had been discovered, and, unfortunately, it appeared that he was not likely to find one. His object in moving the resolution was to husband the resources of the company, so that in the event of the mine turning out after all to be a good one, they would not have to reconstruct in order to find more capital.—After a short discussion, the resolution was amended as follows:—"That the remuneration of the directors henceforth be limited to one guinea per sitting," and was carried by five to three.—The Chairman said, in view of the small attendance, and the fact that he held proxies to the extent of 27,457 shares in favour of the directors, he should demand a poll, which would be taken at once.—Mr. Smith advised the shareholders not to go through such a farce, and his supporters left the room.—The poll resulted in over 38,000 votes against the resolution, and none for it.

JOINT STOCK ACTIVITY DURING THE PAST THREE MONTHS.—As indicative of the activity which has prevailed in the joint stock company market recently, it is instructive to note that between May 1 and July 27 this year contracts to the extent of £86,000 have been placed with newspapers by Mr. W. R. Horncastle, of 61, Cheapside, for advertising company prospectuses.

The following companies at 34 and 35, Gresham-street, E.C., intimate that their offices will be closed on Saturday (to-day) and continue so until Tuesday morning, August 4: Prospectors' Association (Limited), Mount Margaret's Reef (Limited), Karmalpi Gold Mining Company (Limited), Colonial Enterprise (Limited), Key of Komata (Limited).

COAL IN NEW SOUTH WALES.—During the first three months of the present year the coal raised in the Newcastle district of New South Wales totalled close upon 600,000 tons, an increase of 165,000 tons over the corresponding period of 1895. Victoria, South Australia, and Chili are the principal customers for the coal of New South Wales, and the demand from Chili is rapidly increasing.

ROYAL SCHOOL OF MINES BOAT CLUB.—Last Saturday, at Molesey Regatta, this club won the Junior Fours and Junior Eights. The crews were as follows:—Four—S. F. Franco (bow), H. B. Williams, P. Poore, A. E. Pettit (stroke), H. Fugita (cox); Eight—J. J. Jameson (bow), H. G. Scott, N. F. Franco, W. Stirling Hamilton, P. Poore, H. B. Williams, F. J. Blaine, A. E. Pettit (stroke) H. Fugita (cox).

The letters of allotment to applicants for shares in the C.E. (Civil Engineer), Exploration Syndicate (Limited) have been posted.

The annual general meeting of the Henry Nourse Gold Mining Company (Limited) will be held in the board room of the City Chambers, at Johannesburg, at 12.30 p.m. on Wednesday, August 26.

KÖNIGLICHE TECHNISCHE HOCHSCHULE ZU AACHEN.—We are in receipt of the prospectus of this school. The term begins on October 1, 1896, and ends on July 31, 1897.



## LATEST FROM THE MINES.

## CABLEGRAMS AND TELEGRAMS.

**LADDIN'S LAMP.**—The following cablegram has been received from the mines:—"Four weeks' return totals 1507 ounces of gold (approximate value, £5530); 248 tons of ore have been crushed, yielding 1018 ounces, and 5 tons rich crude ore have been shipped, containing 489 ounces."

**ALBERT MINES.**—The syndicate has received from its managing director at Coolgardie the following cable:—"Eclipse (25 mile) have struck a new reef measuring 2 feet wide. Assays average 3 ounces per ton of 2240 lbs."

**BAKER'S CREEK.**—Result of crushing to July 29, 550 ounces retorted gold.

**BROKEN HILL PROPRIETARY.**—A cable has been received by the secretary in London from the head office in Melbourne, stating that the general meeting of the company held there yesterday passed off satisfactorily. The Chairman stated that the board anticipated being in a position to pay dividends of not less than 1s. per share every alternate month during the current half year (from June 1 to November 30). He also informed shareholders that the erection of the concentration works was being expedited, and with regard to the mine a promising development of kaolin ore at No. 5 level at McBryde shaft had taken place; this ore is situated about 100 feet to the south of the previous discovery, and is 10 feet in width, and of an average assay of 200 ounces to the ton.

**CONSOLIDATED GOLD MINES OF WESTERN AUSTRALIA.**—The following cablegram has been received from the manager of the Coongan Mine at Marble Bar:—"Total amount crushed is 40 tons, 47 ounces gold. Recommend crushing."

**CENTRAL CHILI COPPER.**—The directors have received from their manager at Panulillo by cable:—"Result of work for month of June. Mines produced 1500 tons; ores bought, 810 tons; ores smelted, 2050 tons; regulus produced, 271 tons; net profit for the month, £930."

**CRESCENT GOLD.**—Cablegram from T. G. Davey, dated July 27:—"570 tons, 176 ounces. Have begun to sink Victory below E."

**CONSOLIDATED MURCHISON.**—Crushing for July, 1008 tons; obtained 746 ounces of gold.

**DARLOT EXPLORATION COMPANY OF WESTERN AUSTRALIA.**—The following cablegram has been received from Mr. R. H. Lapage, from Coolgardie:—"Mount Remarkable. Rogers reports on the prospects of this mine very favourable; lode is composed of quartz showing visible gold; width of lode is 8 feet.—50 feet level. Lode strong and well defined; will yield good returns."

**DAY DAWN BLOCK AND WYNDHAM.**—Cablegram from the general manager at Charters Towers gives the result of the crushing for the fortnight ending the 25th inst.:—"Tons crushed, 1290; yield of gold, 1294 ounces; approximate value, £4480; fortnight's expenses, £2080."

**DIXIE.**—Cable received from the Chairman of the Dixie Gold Mining Company, dated July 28:—"Fine ore broken from the stopes. Samples taken fairly, 9 ounces 5 dwts. by fire assay. Great improvement in the shafts."

**EXPLORATION COMPANY.**—Alaska Treadwell:—"Cablegram from Alaska reports the clean-up for the month of July as follows:—"Period since last return, 30 days; bullion shipment, \$76,283; ore milled, 20,513 tons; sulphurets treated, 385 tons; of bullion there came from sulphurets, \$22,889; gross expenses for period have been \$22,563."

**HANNAN'S KING (Brownhill).**—The directors have received the following cablegram:—"No. 2 shaft is now down 90 feet. Have commenced driving on lode, which looks exceedingly promising."

**HAURAKI.**—The directors have received the following telegram from the manager:—"Main shaft is down 297 feet. Have struck very promising quartz in No. 3 reef. Further development necessary. Mine is most satisfactory."

**ISLE OF MAN MINING COMPANY.**—The secretary has sold 100 tons of this company's ore at £3 11s. 6d. per ton.

**KATHLEEN CROWN.**—The directors have received the following telegram from the manager:—"The lode has been driven 12 feet. Have discovered another reef on the surface, 9 inches wide, showing speck of visible free gold."

**KATHLEEN GOLD.**—The directors have received the following telegram from the manager:—"Main shaft is down 150 feet, water increasing."

**KURNALPI.**—In continuation of the company's circular letter of the 8th inst., a cablegram has been received stating that crushing is delayed pending the arrival of pump from Melbourne, which is necessitated owing to the splendid and highly valuable influx of water on the property.

**LA YESCA GOLD AND SILVER.**—The manager cables:—"Crushed 71 tons, 990 ounces 70 per cent. Expect to start mill again July 25. Workings show considerable improvement."

**LUCKY GUSS.**—The following cable has been received from the mine manager:—"Apex of Orpha May lode is within our boundaries. Have struck very rich ore at 12 feet, and expect to continue."

**LUCKY GUSS.**—The following cable has been received from the mine manager:—"Have found ore of extraordinary richness in the Orpha May vein."

**LYDENBURG ESTATES.**—The company's prospector in Paardekraal reports by wire:—"Have struck flat reef; carries gold just below Marshall's work. Duscoll's also carries gold average thickness 2 feet," and by letter:—"I have struck another reef the other side of the reef coming towards the camp. It is about 2 feet 6 inches wide, vertical, and in diorite casing; it gives good gold and it looks splendid. The flat reef I wired to you about I think we shall get nearly all over the farm. Duscoll's I think is the best."

**LONE HAND.**—The following cable received from consulting engineer at 25-Mile Coolgardie:—"I estimate the value of the ore actually in reserve and immediately available £24,000. All is now in order. Appoint manager. Should be done immediately. Face of all drifts in good ore."

**MENZIES GOLD REEFS PROPRIETARY.**—Cable information has been received from the manager at the mines to the following effect:—"Clean-up No. 6. 272 hours run; 210 tons crushed; yield 410 ounces retorted gold; tailings assay 16 dwts. Making fair progress development work on the Selkirk, Lady Shenton No. 1, Defoe, and Nada claims."—Office note. The total number of tons crushed to date, inclusive of the above, is 865 tons, total yield 1807 ounces retorted gold.

**MENZIES CRUSOE GOLD CLAIMS.**—Cable information has been received from the manager at the mines to the following effect:—"Clean-up No. 5, 272 hours run, crushed 210 tons. Yield 500 ounces retorted gold, exclusive of tailings, which average 13 dwts.; making fair progress development work. Stopes generally are looking well."—Office Note.—The total number of tons crushed to date, inclusive of the above, is 860 tons, total yield 2341 ounces retorted gold.

**MILLS' DAY DAWN UNITED.**—Cablegram from the head office in Charters Towers:—"Have crushed during the month 632 tons of quartz for a yield of 633 ounces of gold. The approximate value of this return is £2185."

**MONASTERY DIAMOND MINES AND ESTATE.**—Cable received 29th inst. states:—"241 loads yielded 46 carats."

**MURCHISON NEW CHUM.**—The following cable has been received from the mine:—"Level No. 1 and level No. 3 face of drift looks most favourable. Will push this work to every extent in my power." The following cable has been received from the mine:—"Present discoveries most encouraging. Level No. 3 the formation is 2 feet; the vein continues narrow; ore contains visible gold; both walls are well defined and very strong."

**MYSORE.**—The cablegram from the mines, dated July 24, stated:—"Struck lode, Crocker's shoot. Crosscut to the east, 1460 north of sump winze, Rowse's shaft, results of assays will follow." A further cablegram, dated July 25, states as follows:—"Width of lode 4 feet, assaying 1 ounce of gold per ton, in south end of shoot."

**NEW OPTIONS SYNDICATE.**—A cablegram has been received from Mr. T. G. Davey, dated July 27, reporting the result of a further crushing of 20 tons of ore from the Monarch Mine in Victoria as follows:—"Mill test on ores from Monarch 20 tons, 385 ounces, including 3 cwt. specimens, yielding 98 ounces."

**ST. JOHN DEL REY.**—The following telegram has been received from Mr. Chalmers:—"Produce 10 days, second division July, 10,500 ounces, equal to 1210 ounces troy; value, £4070. Yield per ton 5.5 citavas, 63 ounces troy."

**SOUTH MOUNTLYELL.**—Tunnel now being driven through quartz leaders, containing splashes pyrites. Water increasing. There is a very good prospect of finding ore very soon.

**SPRINGDALE GOLD MINING AND MILLING.**—Cable dated July 31:—"The mill has been started; working day and night."

**TREASURY.**—The following cablegram has been received from the head office at Johannesburg:—"Last month's return, 5661 tons crushed, giving 2312 ounces bullion, equal to 1746 ounces fine gold. Profit for month, £680; 16½ per cent. sorted."

**WAIHI SILVERTON EXTENDED.**—The following cable has been received:—"1075 tons crushed, value £2417."

**YALGOO PUBLIC BATTERY AND GOLD.**—The following cablegram, dated July 29, has been received from the company's manager:—"Mindulgarra Mine. Prospecting shaft, west drive. A strong well-defined vein. Average width of the vein is 3 feet 6 inches. Pannings give good results. Richest water level."

**WHITE FEATHER "REWARD."**—The following cables have been received:—"Some very fine specimens broken down from the south stope.—Reef on the 200 feet level has improved, carrying more gold; the reef is now 5 feet in width.—Bulk assays of ore from 200 feet level show 4 ounces 5 dwts. per ton. This is most satisfactory."

**HANNAN'S DEVELOPMENT AND FINANCE CORPORATION (LIMITED).**—Mr. Charles C. West, F.G.S., will leave for Western Australia on August 15 next to take up his position as manager and general representative of the corporation.

## MINOR MINERALS OF THE UNITED STATES.

By DAVID T. DAY.

(Continued from page 866.)

IN the preceding article, aluminium, mica, platinum, and precious stones were discussed as native mineral products of differing interest and economic importance.

**Asbestos.**—This substance is eagerly sought in this country, and has been found in hundreds of places in the Appalachian rocks from Vermont to Georgia and in many western localities, but not a single well-established mine is in operation to-day. The main reason for this is the great supply of crysotile in Thetford and Colerain townships, Quebec. This mineral is always referred to as asbestos, but is really a fibrous serpentine. Any mineral with a silky fibre is apt to be called asbestos; in fact, the writer has just received a sample of pure silica which was supposed to be asbestos, because, under the microscope, it shows a fibrous structure which it probably acquired from the matted plant roots in which it was found.

Crysotile surpasses asbestos proper for all practical purposes. It is incomparably tougher, and admits of spinning and weaving to an extent which would be out of the question with real asbestos, the latter being a fibrous variety of hornblende, which is easily distinguished by being anhydrous, while crysotile has from 10 to 15 per cent. of water. Unfortunately most of the asbestos thus far found in the United States is real hornblende asbestos. Its fibre has proved brittle, though good enough for pipe coverings and similar things, where great strength and toughness of fibre are not essential. For these minor uses several deposits afforded a small product for years. Most interesting among these was a pocket of very good material (compared with the long Italian fibres, or, indeed, with any Canadian), found on Long Island, not far from Brooklyn. The pocket was exhausted and soon abandoned. The best promise of good supplies come from the finds of Sal Mountain, Georgia, and another find in Wyoming, which is more like the Canadian than anything else yet found. The serpentines in western North Carolina should be carefully studied, as well as the similar rocks of Carolina and Oregon.

**Manganese and Chrome Iron Ore.**—For the higher grades of these substances there is a demand greater than the supply. These materials have in common the habit of occurring in pockets of greater or less size, but with an exasperating lack of persistence. The somewhat prevalent idea that we have very large supplies of manganese in connection with the Lake Superior iron ores and in well-known beds in the neighbourhood of Batesville, Arkansas, and in Virginia, must be modified by the fact that custom has limited the demand to ores which are tolerably rich—that is, the percentage of metallic manganese must be about 44 per cent. For many purposes this rules out the Lake Superior supply and much of the material from Arkansas. Virginia has supported the manganese industry for many years, and considerable supplies have also been furnished from Cartersville, Georgia, but the richer pockets have been exhausted as fast as they were found, although the great Crimora Mine was a pocket of so unusual size as to furnish more than half of the total product of the United States for several years. Our lack of rich manganese ores would have compelled us to lower our standard and use the poorer ores, and even the manganiferous iron ores, which are abundant in Virginia and in other parts of the country, except for the fact that Spain and, more recently, Cuba have come forward with high-grade supplies, which can be imported more economically than we can use lower-grade domestic ores.

Our manganese mining industry began with the foreign trade to supply the chemical industry of Great Britain. The very richest pyrolusite of Virginia was shipped in barrels to Liverpool for use in the manufacture of chlorine, but this trade was later injured by two conditions; first, the Walden process for

the recovery of the manganese, so that it could be used over and over again; second, the discovery in Nova Scotia of pyrolusite, which could be shipped in pure condition without any considerable purification, and which now controls the chemical trade.

Since the disturbing influence of the civil war many efforts have been made to regain this trade by producing a still purer material by very careful concentration of Virginia pyrolusite. The most interesting of these was the well-directed effort of Mr. Miller, in Baltimore, who, working on a comparatively finely divided pyrolusite occurring mixed with clay in a large and unusually persistent deposit on the James River, was able to present to the European market pyrolusite of unequalled purity, but on the death of Mr. Miller the project was abandoned.

Practically all of our manganese now goes into the manufacture of spiegeleisen and ferro-manganese for the Bessemer steel trade, and with the western extension of this industry the manganiferous iron ore of the Lake Superior region will no doubt be used more and more.

Manganiferous iron ores associated with the silver-lead ores of Leadville have also come into use, and will increase in importance with western development. Another source of manganese, which adds with considerable steadiness to the supply, is the residue from the manganiferous zinc ores in New Jersey, which will always constitute a well-developed factor in the supply. The total output, which in 1894 had fallen to 6308 long tons, rose in 1895 to 9547 tons, valued at \$71,769, the increase being due to developments in Georgia and some old producing States.

The chrome iron ore industry, like that of manganese, began in the United States with the production of an article for export to England, Scotland, and elsewhere; but it soon built up the manufacture of potassium bichromate in Baltimore, so that the factory there monopolised for many years the production of that substance in the United States. The efforts to compete with this enterprise may be counted, not only by tens, but hundreds; only one, however,—the Kallion Chemical Company, in Philadelphia—has succeeded. Foreign chrome iron ore makes the bulk of the raw material for both of these works, because the rich deposits in Maryland and Pennsylvania, which long served as the source of supply, have been worked out, with the exception of small reserves of unknown quality. Production then developed in northern California, and very many deposits of all sizes have been developed along the Coast Range from Del Norte County to San Luis Obispo. There was great demand for this material so long as the percentage of chromic oxide was above 50, but the rich deposits were comparatively soon exhausted. Opportunely others were developed in Turkey by the investigations of Professor J. Lawrence Smith. These ores continue rich in quality, and are transported at low freight rates. As the great cost of the process is in the decomposition of the ore, it pays to decompose only the richest that can be obtained, especially as these are more easily treated than the poorer ones, and yield, of course, higher results. Meanwhile, the keenest search is kept up for new deposits in this country, with fair prospect of success when more shall be known of the serpentine areas in the south western part of North Carolina and the adjoining region in Georgia. In fact, any large bed of serpentine may well be explored for chrome iron ore. The most promising of recent developments is the deposit recently explored in Coleraine township, Quebec. Possibly the lower grades of chrome iron will be resorted to, if the use of chromium in the manufacture of steel increases. The California production in 1895 amounted to 1740 long tons.

**Sulphur.**—This, too, is a mineral which has been mined in the United States in a small way, and for which there is a great market whenever a convenient source of supply is developed. The supplies thus far found have been located in inaccessible regions of the west—in Southern Utah and Arizona, and in small deposits in California; even in San Francisco it is cheaper to import sulphur from Sicily or Japan. Lately, however, another deposit has excited much interest, although it is extremely inaccessible by reason of a bed of quicksand which covers it. This is at Sulphur City, in South-Western Louisiana. The ingenious process of Mr. Frasch, by which the sulphur is to be melted by hot water underground and pumped to the surface, is being watched with great interest. The sulphur produced by this process must be cheaper than which we import, and, while there is a great demand for sulphur in the United States, which is well supplied from Sicily, the possible success of this pumping method means a terrible loss to the Sicilian sulphur miners, who are none too prosperous with sulphur at its present prices. Their condition has not been improved by the Chance process for the recovery of sulphur from the Leblanc soda process; 1800 short tons of sulphur were produced in the United States in 1895.

The other chemical minerals—salt, phosphate rock, limestone for chemical purposes, borax, gypsum, pyrite, barite, and fluor-spar—form a class of which the supply could at any time be increased.

**Rock Salt.**—The distribution of large and easily mined deposits of rock salt and salt brines is so plentiful that the process of selection has already partly excluded many of the poorer ones from the market, including the oldest member of the salt producers, Syracuse. This salt has already suffered in the decline, having been replaced by the saturated brines obtained from the rock-salt deposits at Waraw and by the strong Michigan brines. In addition to these vigorous competitors, the rock-salt beds of Kansas are actively competing as a western supply, and in Cleveland a plant of particular efficiency is obtaining saturated brine from a deposit of rock salt underneath that city. In the meantime, the rock-salt deposits of Petit Anse, Louisiana, have been reinforced by the discovery of a very thick deposit of rock salt on Orange Island. Besides this, we know of very extensive stores of rock salt for the future in south-eastern Arizona, in addition to the store in Salt Lake itself. The Pacific Coast is also independent of eastern supplies through the evaporation of the salt brines from the Pacific and the rock salt of the southern part of the State. It is strange that no more active search has been made among these rock salt deposits for the discovery of deposits of potassium salts—an industry which the United States lacks altogether, and which is limited practically to the potash beds near Stassfurt, Germany. We know so little concerning the salt deposits of the United States as to make it very possible that borings to the bottom of the larger of these may easily reveal beds of potash salts of equal importance with those in Germany; so far absolutely no such bed has been found in this country, but search is now beginning.

Nearly all the salt produced, with few exceptions, is almost pure. Still, a claim for existence has been made, with success, for two brands of salt on account of their exceptional purity. There are few commercial substances which are as pure as commercial salt; nevertheless, small traces of calcium chloride and magnesium chloride and sulphate make a vast difference as to whether the table salt will cake or not, and salt as nearly chemically pure as it will ever be profitable to make has lately been placed on the market. It is so free from calcium chloride as to give only the slightest cloudiness to a solution of ammonium oxalate. The undoubted effect of all this will be to raise the grade of all dairy salt.

(To be continued.)



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LONDON: AUGUST 1, 1896.

**THE JAMESON TRIAL.****E**NGLAND expects every man to do his duty. A long  
series of stirring times prompted, now nearly a century  
ago, a brave commander to voice the national sentiment  
in this now celebrated short sentence. The sentence addressed  
to subjects of a great and brave nation failed not then, and  
never has since, to remind them of every thing that  
is best and truest in their national instinct. The  
JAMESON trial to-day reminds the world that England is still a  
great nation. That the pulse which beat at the commencement  
of the century when she ruled the seas beats still. That the  
justice which has served as a model and an example to other  
nations is still honoured, that judges and juries can act without  
fear and without favour. That the English people can keep  
their heads and still be the English people.The JAMESON trial affords a splendid illustration of the many  
inconsistent qualities, good and bad, which go to make a great  
nation. The circumstances now uncontested are certainly re-  
markable. Some six Englishmen, gentlemen of birth and breed-  
ing, one in a high administrative position under the authority  
of Her Majesty, others actually in Her Majesty's service, all  
her subjects, have been charged with and convicted of a criminal  
offence. Each and everyone of these gentlemen, it was not con-  
troverted, were men of character and distinction. They are,  
moreover, it cannot be gainsaid, brave, gallant, and noble, and  
it cannot be doubted, too, that they are loyal, loyal totheir country and their Queen. Yet their crime is that being  
subjects of the Queen they broke her laws, that they with  
force broke into and entered the territory of a State in amity  
with their Sovereign, the independence and government of  
which she had bound herself to guarantee. They had done  
this, not only without the sanction of their Queen, but had  
persisted in pursuing it in direct violation of her command.  
As to one of them at least, Dr. JAMESON, the chief offender,  
the offence was aggravated considerably by the fact that he  
had accepted the grave responsibility of administering and  
policing a large territory in South Africa, in which were many  
of his fellow-countrymen engaged in colonising and opening  
up trade in a savage country, liable at any moment to be  
the victims of any misunderstanding that might arise between  
the white traders and natives; and he neglected this duty in  
order that he might embark on a project which was no part of that  
duty. Apparently the best that could be said for him was that  
fellow subjects of his Sovereign had grievances in obtaining  
the redress of which they were in peril. That such an excuse  
should have availed Dr. JAMESON for a moment with the  
English or any public appears now strange. He left the post  
he had accepted, leaving the people whom he was bound to  
protect unprotected, and as it has since proved, and as he  
ought to have known, in peril, that he might pursue a work  
which was the obligation of his Sovereign, and the doing of  
which, without her authority, constituted a reflection and  
stigma upon her Government and her humanity. Reviewing  
these events now, it seems strange that but a few  
months since the author of this act should have been received  
into this country, because of such an act, as the hero of the  
hour.There was, however, much to attract the popular mind. The  
advent of the new year was startled by the news of a sudden  
gallop of a few hundred men unprovoked to the rescue of women  
and children from the peril of massacre by men of a nation of  
stubborn character who had, to say the least, given our trained  
troops some considerable trouble in the past. The act seemed  
one of dash and daring. Right or wrong it was ex-  
citing though quixotic. The public can scarcely be to blame  
if they did not stop to enquire, but took the men at their word,  
that it was a moment when "it was theirs not to reason why,  
themselves but to do and die." We now know that it was no sudden  
impulse, that the road had carefully been provisioned, that the  
necessity for the incursion had been long contemplated, that  
had it been desired there had been ample opportunity of apply-  
ing for assistance in the ordinary course to the regular Govern-  
ment of Her Majesty, and that Dr. JAMESON's attention had  
been for weeks, before the end of the year of 1895, directed  
not towards the government and policing of Rhodesia, but  
towards Johannesburg, and that instead of gathering informa-  
tion about the doings of the natives in his own district, he was  
thinking of the doings of the Boers within the Transvaal.To us, in common with the rest of the world, all  
this has been made clear by the trial now concluded.  
Not only has the law been vindicated, but the opinion  
which the world at large has formed of the adminis-  
tration of justice in this country has been justified.  
The effect of the trial of Dr. JAMESON and his comrades will be  
far reaching. In Africa alone there is a wide district not strictly  
within the Queen's dominions, but within the sphere of British  
influence, where it will be felt. It demonstrates in a practical  
manner to untutored minds that the laws of England are far-  
reaching, that the control, too, of the Queen over her subjects is  
no empty word, it will teach, moreover, to the tutored as well that  
the days of irresponsible raiding is past; and to all that the  
judges are still strong enough to tell a jury of Englishmen with-  
out fear that they will betray their trust—"If upon the review  
of the evidence you can answer, honestly saying, that there is  
no evidence against any of these defendants, so do; it is your  
right; the responsibility is yours. If the conviction is borne  
in upon your minds that this was a military expedition, contrary  
to this act, then you will do your duty, as jurymen have done  
before in circumstances much more difficult than these, and  
concur, without hesitation, in saying that they are guilty."The trial throughout was conducted with great dignity.  
From the prosecution there was absent all element of passion,  
and every possible reasonable contention was made with every  
due emphasis on behalf of the defendants. The far-reaching  
character, which was to hang upon the result, was evident from  
the manner of the Court, whose decisions in the course of the case  
and directions to the jury on questions of law were governed  
by broad principles of common sense rather than by technical  
rules of law. There cannot be doubted that the defendants  
themselves were satisfied of the finality of the decision. The  
political importance of the trial was evident from some of the  
directions on the law to the jury. The objection raised by Sir  
EDWARD CLARKE to the indictment at the outset that it failed  
to allege that an offence had been committed at a place within Her  
Majesty's dominions might have been successful in many ordinary  
trials, but a failure of justice on a mere technicality of pleading  
would have been too great a scandal when consequences greater  
even than the acquittal or conviction of the defendants hung  
upon the issue. Again, it is not doubted by any international  
lawyer, we venture to think, that the Court went an exceedingly  
long way (recalling the days of long since) when they directed  
the jury upon the question as to whether Pitsani Pitogo  
was within the dominions of the Queen. It will be  
recalled that the Court at the outset of the case  
ruled that the indictment meant that the expedition had been  
prepared at a place within the dominions of the Queen. It  
therefore, became necessary that the jury should find either  
that Pitsani Pitogo was within the Queen's dominions, or that  
the defendants, who were shown to have been there, and not  
at Mafeking, in doing what they did at Pitsani Pitogo before  
entering the Transvaal did what they did knowingly for the  
purpose of assisting the acts which were taking place at  
Mafeking. As on the evidence the jury might have  
taken the view that the defendants at Pitsani Pitogo



did not know that they were assisting the preparations being made at Mafeking, it became important that Pitsani Pitlogo should, in that event, be found to be within the Queen's dominions, in order that the offence should come within the terms of the Foreign Enlistment Act. The Court accordingly directed the jury that if they found that the Queen exercised Sovereignty and dominion at Pitsani Pitlogo, that, in law, made that place within the Queen's dominions. There would seem grave doubts that anything but the exigencies of the case could have justified such a ruling. There has not been, admittedly, any cession of territory by the native chief MONTSIOA. It is clear that the exercise of dominion by the Sovereign does not make the place within the dominion, for, by the Foreign Jurisdiction Act, such exercise is recognised in foreign countries; and that the Queen should have assumed Sovereignty, in fact, over an area outside her dominions cannot, one would think, bring the place within, without annexation. There was, moreover, no evidence that the Crown had violated the treaty with MONTSIOA; on the contrary, there was some evidence that land for a camp there had been accepted at the hands of MONTSIOA, in his position of chief. The Lord Chief Justice told the jury the Foreign Enlistment Act was an Act for the purpose of preventing territories "under the dominion and authority" of the Queen from being used as places in which there shall be prepared expeditions, military or naval, to proceed against a friendly state? But the Act does not say so. It speaks of places only "within the Queen's dominions." The decision shows, therefore, the political exigency of the judgment. It was not to be a case tried upon technical principles of law. Practically, said the Court, there is no distinction between exercise of dominion and authority by a civilised State in the territory of a savage chief, and that territory being within the dominions of the civilised State. No one can deny the truth of this. Not even the native chief who sighs, "Practically, yes!" Nor will Dr. JAMSON deny its common sense nor the justice of the decision. But these circumstances, in our opinion, entitle the prisoners to exceptional treatment. They, whatever their faults are, acted throughout as brave men. To the end they faced the consequences together. They have erred and been convicted, and we doubt not feel more acutely than any restraint or corporal punishment the thought that their thoughtless, rash act should have brought about the retribution that has followed the neglect of their duty of policing Rhodesia. They have been convicted to serve as an example. Contentions which would otherwise availed them have failed because of the political importance of the matter. It is a question between the Sovereign and her offending subjects. President KRUGER has no right to interfere. His claim lies on the breach of the guarantee we gave him by the Convention of 1881, by right of which he has his independence. As the exigency of the case demanded the prisoners should be tried as political offenders, so in their punishment they should be treated.

## THE CAUSES OF DEATH IN COLLIERY EXPLOSIONS.

THE valuable paper of Dr. HALDANE on this subject, which those of our readers, who were unable to hear it read at the Wigan meeting of the North of England Institute of Mining Engineers, have no doubt been glad to make acquaintance with in the condensed form in which we have been able to reproduce it, must not, of course, be studied wholly by itself. It must be looked upon as the summary, in a sense, of Dr. HALDANE's reports on this subject to the Home Office, and thus represents only a portion of his labours. These do not so far seem to have attracted all the attention they merit from mining men, but perhaps it may not be difficult to find a reason for this fact. We do not wish to be in any way understood as undervaluing Dr. HALDANE's excellent work, when we say that there is less absolute novelty in his conclusions than he himself seems to imagine. We would hardly care to make this statement unless we were able in a measure, at any rate, to prove our assertion, and this we can fortunately do from our own columns.

Dr. HALDANE was requested by the Home Secretary to investigate, in the first instance, the direct cause of death of the men killed in the disastrous colliery explosion at Tylorstown, in January of this year. We drew special attention to this explosion at the time, and devoted a leading article to it in our issue of February 1. In the course of this article we remarked on the fact that lamps had been found burning in the very spot where a number of men were found lying dead. We pointed out that men can live in an atmosphere so far deprived of oxygen that a lamp will be extinguished, so that it was practically certain that these poor fellows were not asphyxiated—that is to say, their deaths were not due to a deficiency of oxygen. We pointed out that they had not been killed by the direct force of the explosion, and concluded that "it is possible that they fell victims to the direct poisonous action of carbonic oxide, which must be produced in large quantities, especially in a coal dust explosion." This, we need not remind our readers, is precisely the conclusion to which Dr. HALDANE's elaborate investigation has led him. It is, of course, gratifying to us to find that the physiological researches of so able a specialist thus corroborate the opinion which we had expressed long previously, based on practical knowledge and technical reasoning. In this same article we emphasised the fact that "the number of lives lost by the poisonous effects of the after-damp is, as a rule, considerably greater than that due to either the high temperature or the dynamic violence generated by the explosion itself." This latter view is entirely borne out by Dr. HALDANE's observations, and yet he himself states that the fact that such is really the case, came upon him as an entire surprise. It is obviously no surprise to mining men, whose views, we take it, we were representing when we wrote the above lines. Again, however, we are gratified to find our opinions

borne out by Dr. HALDANE, who considers that in the three serious explosions which he investigated, three-fourths of the victims might have escaped were it not for the after-damp. We think we have made good our case that the main facts were known at any rate to mining specialists, who had made explosions a subject of study, before Dr. HALDANE's researches were published: that, firstly, it was the after-damp that claimed the most victims in an explosion; and that, secondly, carbonic oxide was the dangerous poison present in that after-damp.

It must not be forgotten that engineers, in a very closely allied branch of the profession, have abundant knowledge of, and experience in, the poisonous effects of carbonic oxide gas. We refer to blast furnace practice, in which large quantities of carbonic oxide is generated; every now and then chargers working at the furnace top get overcome by the furnace gases, or "gassed" as they call it, when anything goes wrong with the gas mains, or dampers, or any part of the apparatus employed to conduct this gas away. Fatal accidents are, fortunately, rare, though such have occurred. In the majority of cases, help is immediately at hand; and there being plenty of fresh air available, serious consequences are generally averted. There is a great deal of interesting information on this subject in that storehouse of facts relating to iron manufacture, Dr. PERCY's "Metallurgy of Iron," published in 1864. Even then the poisonous effect of carbonic oxide gas was thoroughly well known, the historic researches of CLAUDE BERNARD, on the action of carbonic oxide on the blood, to which Dr. HALDANE also refers, having been published seven years previously, namely, in 1857. Dr. PERCY also quotes LEBLANC's experiments, published in 1842, or over half a century ago, in which that experimentalist showed that a dog died in 20 minutes in air containing 0.54 per cent. of carbonic oxide, whilst a candle continued to burn for some considerable time afterwards. He also showed the effect of air containing 1 per cent. of this poisonous gas on small birds, just as Dr. HALDANE has done in the case of mice. Dr. PERCY points out that in one case he mentions, inflation of the lungs with oxygen appeared to save life, and recommends that a bag of oxygen should be kept at hand in iron-works for such emergencies. This, as our readers know, is precisely the main recommendation of Dr. HALDANE, who suggests that some form of oxygen apparatus should be provided underground. It is curious that the same method should be proposed by eminent authorities for fighting this insidious danger, whether in the coal mine or at the blast furnace top. From what we have said, it would appear that much of the gist of Dr. HALDANE's reports was really well known beforehand to mining engineers. There is, however, this very great difference: Before Dr. HALDANE's investigation we had a qualitative knowledge of the subject; he has given us a quantitative one, and the importance of this difference must not be overlooked. We knew before that carbonic oxide was the enemy we had to fight, but we did not know in what proportions; we did not know whether the quantity was great or small, and it is the merit of Dr. HALDANE's work that he has narrowed the question down to very close limits. His statement that the after-damp along the course of the Tylorstown explosion contained from 1 to 1½ per cent. of carbonic oxide is the most valuable conclusion contained in his reports. It has made quite precise and definite, what was before only a matter of reasoning and conjecture, and has thereby rendered an immense service to coal mining. For it is clearly the first step towards averting a danger, when we know exactly what the magnitude of that danger is.

With regard to the various suggestions made by Dr. HALDANE for minimising the loss of life, we are afraid that not much can be said in their favour; they may, we fear, for the most part, be classed as either already in use, or as impracticable. For instance, mining engineers do already take all possible precautions to protect their fans from the effects of an explosion, should one unfortunately occur, and the getting the fan at work and getting as much air as possible into the workings is always the first thing done after the accident has happened. The suggestion of keeping supplies of oxygen underground does not seem to us a practical idea; apart from the expense, it would hardly be possible to keep such a supply at every working face and in every part of the mine, and yet no one can say in what part of the workings it is likely to be required. Far more feasible would it be to have a few light oxygen cylinders kept in the colliery office, and to make each rescue party carry such a cylinder with them, not only for their own use, should a belt of bad air have to be traversed, but to enable them to revive any of the miners overcome by after-damp, whom they might come across. It would not be a very difficult matter to design an oxygen cylinder of moderate strength and great portability that might readily be carried underground, even though the travelling ways would be naturally more or less blocked by falls and other obstacles. The expense would be a mere nothing, and it seems to us that this suggestion might very well be acted on with advantage. It may be said that it is not a colliery manager's duty to prepare for explosions, but to prevent them. Whilst it is, however, obvious that no precaution that can conduce to the safety of the mine and miners should ever be neglected, it is, unfortunately, certain that in the present state of our knowledge, the absolute prevention of explosions is not possible, because in spite of the large amount of study that has been and is still being devoted to this subject, we do not know as yet all the conditions upon which absolute safety depends. It is not very difficult to point out what conditions would be certain to cause an explosion, but the converse is not yet true. We cannot say of any coal mine that it is absolutely beyond the bounds of possibility that an explosion may occur in it. This being so, whilst a manager is assuredly bound to do all he can to lessen the probabilities of explosions occurring in the mine he manages, this is all he can do; he cannot convert the improbability into an impossibility, and as long as this is the case, he is, we hold, equally bound to take such precautions as may tend to minimise the loss of

life, or to save the greatest possible number of the men underground, should an explosion occur, without on that account lessening for a moment his vigilance over the conditions of safety as far as they are under his control. It does seem to us that the provision of a supply of oxygen gas in a convenient portable form, may fairly rank among such precautions, and we should be glad to see its efficacy tried in case of need, although we most sincerely hope that it will be a very long time before an occasion may arise in which the value of this remedial agent may have to be practically demonstrated.

## GOLD MINING IN CARIBOO.

THIS district of British Columbia is now receiving more attention from miners and others interested in mining ventures than has been paid to it at any time since the great rush of Californian miners in 1859, when starting from New Westminster they worked their way up the Frazer until they disclosed the richness of Williams and Lightning Creeks, near where Barkerville now stands. At the present moment the chief companies operating there are engaged in hydraulicing; a few companies, however, have given their attention to dredging the bed of the Frazer and its tributaries, but up to the present these have not been altogether successful, and the problem of river dredging still remains unsolved. The Frazer offers many difficulties to this form of mining enterprise on account of its tremendous current and its great depth. There are three dredgers now on the Frazer between Lillooet and the confluence of the Thompson, but they have all suspended active operations during the past few weeks. The largest of these cost £3000 and the smallest £4000. The latter has made, under favourable circumstances, from \$70 to \$100 per diem, and will recommence work when certain necessary alterations have been carried out. At Quesnelle the Fader dredger earned \$35 after a few day's work, but new machinery is required to enable it to obtain better results, and the Underwood dredger, lately constructed at a cost of £5000, for work on the higher reaches of the river, is also found to require alteration. The Pittsburg Company have just completed one, possessing four complete engines, in addition to an electric light plant, and are prepared to build four others should this one give satisfactory results. The dredger question is attracting much interest; and should any of those in use ultimately prove successful, or one be invented which should prove itself able to cope with the difficulties presented by this great river, many more would be speedily constructed. Practical miners are convinced that this is the most profitable and satisfactory manner in which the Frazer can be worked—wing-dams being impracticable—and small private companies, supported by local capital, can engage in this enterprise, but hydraulic operations can only be undertaken by a company which is prepared to acquire a considerable area of auriferous gravel, and go to a large expense for flumes and piping. The best informed men in the district think that dredging will be successfully carried out, but that time and money must yet be spent in experimenting before this result is obtained. Mining men are all agreed that coarse gold does not travel far, and when nuggets worth from \$3 to \$50 are found in a certain spot in the river it is considered certain that a quartz ledge exists within a short distance of that place, and the fact of coarse gold only being found at intervals is held by miners in that district to show that in these spots a quartz ledge has been cut through, and ground to pieces by the continual wash of the river; and they hold that dredging operations, if carried out near these places, should yield good returns. The results of the operations of the great hydraulic companies situated near the forks of Quesnelle and the Horsefly will not be known until the end of the season, but as they are said to have abundance of water, good results may be anticipated, as they all commenced work this season with a good head of water for the "monitors" or "giants," and no breakdowns are hitherto reported. Many small claims have had to shut down for want of water, the California Consolidated being one of the largest, and the Victoria Company are engaged in extensive fluming operations at Spanish Lake with the object of improving their water supply. We learn that when the Horsefly Hydraulic Mining Company recently stopped to clean up after a few hours' run, gold was taken out to the value of \$8100, although the ditches at the side and the bed were undisturbed, this is considered a remarkable showing.

## INTERESTED PHILANTHROPY.

THE shareholders of Colenbrander's Matabeleland Development Company adopted, by an overwhelming majority, the proposal of the board to assist the Chartered Company to the extent of £5000 to suppress the revolt in Rhodesia. Such an issue of the meeting held last Monday was to be anticipated, for it would have been surprising had the shareholders refused to make so small a sacrifice, even were it unlikely for any benefit to themselves to result therefrom. The Chartered Company, no doubt, will be thankful, in its present predicament, for the slightest aid, even if it should take no material or pecuniary form. The free gift of Colenbrander's materially is insignificant, but the directors of the unfortunate parent company will, no doubt, be more grateful for the feelings which prompted the philanthropy, and for the greater assistance which is likely to follow the action, than for the small sum which will make so little impression upon their coffers. It was aptly described at the meeting as a "drop in the bucket," but as more drops will in all likelihoods follow, the bucket in the end may become quite weighty with its contents, and the latter become of real material value. We have described this action of the directors as "interested philanthropy," and no effort was made to conceal this. Indeed, it was one of the most potent arguments of the board as to the wisdom of such a course of action, and undoubtedly the shareholders recognised its convincing character. The directors, of course, encountered



some opposition, but the opponents of the proposal were unable to offer any solid argument against it, and this in a great measure accounts for the crushing defeat they encountered. On the other hand, the arguments of the board—especially as laid down in the eloquent speech of Mr. Dormer—were overpowering, and the only surprising thing is that some one did not rise to propose a larger sum than an insignificant £5000. This proposal was the principal object of the meeting, but in the notice sent to the shareholders, another object was stated—viz., "to lay before the shareholders the general position of the company." The information which the Chairman gave was certainly of the meagre, and much dissatisfaction was naturally expressed at such reticence. But the shareholders seem to forget that the company has been in existence but a short time, and that, owing to the revolt in Rhodesia, they have been able to perform but very little work. The directors are not to blame for this, and if there is nothing to tell the shareholders the latter must not express dissatisfaction against those who are not responsible. Again, complaint was made at the low price of the shares. Are the directors to blame for this? Are they liable for market fluctuations? The shares of much more prosperous and promising companies than this are far below their proper value; then why wonder that Colenbrander's should be affected by the present condition of things? Neither are the shares likely to rise, no matter what the directors might do, until peace has been re-established in Rhodesia. The position there, together with the holiday spirit, is largely accountable for the present depression, and the directors are powerless to relieve it. Besides, many influences, accountable and unaccountable, bring about strange fluctuations in the prices of shares, and we are surprised that investors and speculators should express their ignorance of this. At any rate, the Chairman was able to show that the company is in a fairly strong financial position, but one likely to be much weakened before the cessation of hostilities. But it can afford to be philanthropic to the extent of £5000, not only because it may aid a little in accelerating that desirable end, but because the company is likely to be repaid in other ways.

### THE CRISIS IN THE COAL TRADE.

We have been favoured with a copy of the "manifesto" of the Derbyshire, Nottinghamshire, and Leicestershire Colliery Owners' Association, in which they make out a most excellent, if not powerful, case for themselves, and from a perusal of which the public ought to be convinced of the injustice of the men's demands, as well as of their woeful ignorance and lack of foresight. Unfortunately, the majority of the men are incapable of understanding the laws of political economy, and any desire on the part of the minority to think the position out for themselves is crushed by the opinion of the general body, who are controlled by those who seek their own glory at the expense of the well-being of their dupes. If the collier would read and well weigh the significance and truth of the following paragraph, he would, we think, see more vividly that his interests lie not in demanding a high rate of wages, with the prospect of getting none at all, but in plenty of work, which is more likely to be secured by a moderate wage and reasonable working costs. "The amount of the collier's earnings depends upon the number of tons of coal which he may get per day or per week, as the rate upon which he is paid is a price per ton upon the quantity of mineral gotten. Thus it will be readily seen that a collier may have a high rate of wages, and yet, if the demand for coal falls, and little is being raised, his weekly earnings may be comparatively small. Plenty of work is of more importance to him than a high rate of wages. Although a high rate of wages does not necessarily secure the collier larger earnings, it does seriously decrease the cost of every ton of coal produced." The facts laid bare in this manifesto should go very far to enlist general sympathy with the coalowners, more especially in the Federated area, and in the same ratio should take away from the men's cause that public support for which they so eagerly look. We cannot hope that these facts will make the men—that is, their leaders—more just and considerate, for they absolutely fail to recognise that the coalowners have any case, or are in jeopardy of having their estates ruined if they complied with such unreasonable demands. They will in all likelihood read this document, but with jeers and contempt. But it was not printed for their instruction so much as for that of the public, and if the Association gains the end it has in view, knowledge will enlist sympathy, and the latter will call for justice, and this will greatly weaken the cause of the colliers. We make an earnest request to all our readers to read this manifesto, for they will be much enlightened thereby.

### DIARY.

**Saturday, August 1.**  
Consett Iron, Newcastle-on-Tyne, 1.  
**Monday, August 3.**  
Bank Holiday.  
**Tuesday, August 4.**  
Jay Hawk and Leno Pine Consolidated Mining, Winchester Ho., 12.  
**Wednesday, August 5.**  
Mines Investment, Cannon-street Hotel, 3.  
**Thursday, August 6.**  
London and Western Australian Investment, Winchester House, 12.  
Sutherland R.-of, Winchester House, 12.  
Nigel Extension, Winchester House, 12.  
Jackson Gold Fields, Winchester House, 12.  
Angelo, Johannesburg.  
**Friday, August 7.**  
Kornalpi Gold Exploration and Development Company (W.A.), Cannon-street Hotel, 11.  
Aluminium Company, Cannon-street Hotel, 12.  
Woodley's Reward Gold Mines, Winchester House, 3.30.  
Lambert's Coldries, Cannon-street Hotel, 3.

We have to acknowledge receipt of a copy of the third and revised edition of Mr. Richard J. Middleton's work, "Gold Mining."

## THE MINING MARKET.

FRIDAY EVENING.

Depression on the Paris Bourse has affected the London market.—A good recovery at the close.

ALTHOUGH the volume of actual business in mining securities has not appreciably increased during the past week, the range of fluctuations has widened considerably, owing chiefly to a short-lived financial panic on the Paris Bourse. Under the pressure of Continental sales, which assumed exaggerated import, by reason of the reduced position in the London market, African prices were marked down in the early part of the week in an almost disconcerting manner. The horizon looked very dark whilst the spasm lasted, but, fortunately, its effects were soon overcome, and the recovery was so prompt as to reduce the evident effects to insignificant dimensions. Apart from the trouble in France there has been very little to influence the market on this side. The end July Settlement was soon arranged. The conviction of Dr. Jameson and his comrades had been so far anticipated as to be without significance as a market factor. The offer of Mr. Cecil Rhodes to give himself up for trial can hardly be said to have had any effect one way or the other. These three items set on one side, there has been practically nothing to affect the unrelieved stagnation of holiday markets. We are on the eve of the August Bank holiday, which will inaugurate a recognised vacation in the City. It is worthy of note that the Committee of the Stock Exchange have decided against the closing of the House on Saturday, their alleged reasons being the unsatisfactory position of affairs in Paris. Already, however, there has been such a marked recovery from the little scare of Tuesday and Wednesday that these fears on the part of the London executive would seem to have been as overdone as the canards locating the trouble in much higher quarters than facts have justified.

#### South Africans.

The making-up on Monday showed a very general decline in the prices of Kaffirs, but as the Account was small, the differences to be settled did not give rise to any open default. The average continuation rate on gold shares was about 7 per cent, and where rates ruled higher, the explanation was that some large sums had been withdrawn from the market, so that the money available for Contango work was curtailed. As already indicated, the depression in Paris has been responsible for some sharp fluctuations, though it is improbable that any large number of shares changed hands at the altered figures. East Rands have been the medium of perhaps the largest business. These were made up on Monday at 7½, and immediately offered down for the new account, closing in the Street that evening at 6½ sellers. After shedding another small fraction on Tuesday the shares were actually offered at 6½ on Wednesday morning. Then the bears came into cover, and a smart rally ensued, carrying the price back to 6½. The recovery has since made further progress, and at 6½ the shares are finally ½ down on balance. It was alleged that the contemplated issue of new capital gave the start to the French selling. The probability, however, is that pecuniary embarrassment on the part of weak holders proved the real key to the mystery. The subsidiaries, Comets and St. Angelo, are both ½ down at 2½ and 4½. Rand Mines have been depressed on Paris account, and close ½ down at 29½. Losses of ½ or so are shown in Champ d'Or Deep at 2, and Nourse Deep at 5½. Several of the Barnato stocks have been supported in anticipation of the return to this country of the head of the firm. His arrival is anticipated as likely to be the signal for some concerted movement. Glencairn has risen ½ to 3½, Barney Banks and Consols ¼ each to 2½ and 2½. Johannesburg Investments are maintained at 3½ and New Primrose at 5½, whilst Buffels at 2½, Langlaagte Royal at 1½, May Consolidated at 2½, and Reitsfontein at 3½, are all ½ down. The Robinson Group has moved irregularly, for whilst Randfonteins have improved to 2½, Langlaagtes have lost 2s. or 3s. at 5½ ex 3s. dividend. Block B at 1½, and Robinson Banks at 6 are without alteration. In the Eckstein Group Modders have improved ½ to 6½, whilst Ferreira have declined ½ to 20½. Jumpers ½ to 6½, Simmer and Jack New ½ to 4½, and Wemmers ½ to 8½. Knights, in which there is a freer market than in many of the quondam favourites, have lost ½ at 6½. Robinsons, allowing for a 5s. dividend deducted, are ½ down at 8½, and a similar reduction is shown in Van Ryn at 4½, and the Subsidiary Wests at 2½. Transvaal Gold has given way ½ to 7½, and the small Lydenburg Group is rather easier, Spitzkoppe being ½ down at 7½. In Diamond shares, De Beers specially suffered under Paris sales, but have since achieved a recovery to 29½, which leaves them about half a point down. Jager are ½ lower at 10½.

#### West Australians.

This market shows a marked recovery, although the public does not appear to be taking a very large interest. The chief feature has been the run up in Lake View properties. The 10s. shares of the old Australian Company have been worked up to the neighbourhood of £14, whilst the £1 shares of the English Consolidated Company are relatively higher, and mark a gain of 1½ at 7½. The London and Globe Finance, and the Exploring and Finance Companies, which have been jointly concerned in the financial operations between these two companies, have sympathetically improved to 4½. Joint Stock Trusts are rather easier at 3½ premium, but the Associated group has developed remarkable strength. Associated are ½ higher at 3½, and the subsidiary Lake View South has scored ½ at 2½. Hannan's Brownhills have recovered half a point at 5½, and Great Boulders have been a good market, scoring ½ at 7½. Boulder Main Reefs have improved ½ to 1½, Perseverance ½ to 1½, True Blue ½ to 1½, Lady Loch ½ to 3½, and Horseshoes ½ to 1½. There are no appreciable changes in the Menzies, White Feather, and Ramage groups. W.A. Goldfields are slightly better at 9½, ex their 6s. dividend. Share Corporations have put on ½ at 1½, W.A. Development ½ at 1½, and Mainland Consols ½ at 3½. Hampton Plains are ½ easier at 4½.

#### Miscellaneous.

The chief excitement in this market has been in Copper shares. Tintos, which were subjected to a severe attack on account of Paris, were sold down to 22½ on Wednesday. The recovery to-day has been very sharp, and at 23½ the shares are ½ lower than a week ago. Anaconda has lost ½ at 6½, Mason and Barry ½ at 3½ and Tharsis ½ at 5½. Broken Hills have put on ½ at 2½, and British are the same amount better at 4½. Mount Lyells have recovered strongly closing ½ higher at 8. A general slight improvement is shown in Indians, Mysore leading the way with a gain of ½ at 7½, Champion Reefs at 7½, and Nundydroogs at 3½ are both ½ better. New Zealand shares

have been quiet, with quotations fairly well maintained. Several Charters Towers shares have put on small fractions.

#### STOCK EXCHANGE SETTLING DAYS.

CONSOLS.  
Tuesday, August 4.  
MINING MAKING-UP DAYS:  
Monday, August 10. | Tuesday, August 25.  
MINING NAME DAYS:  
Tuesday, August 11. | Wednesday, August 26.  
ACCOUNT DAYS:  
Thursday, August 13. | Friday, August 28.  
N.B.—Monday, August 3, Stock Exchange closed.

### TIN MINING IN AND AROUND HERBERTON, NORTH QUEENSLAND.\*

By JOHN MUNDAY, Mining Engineer.

TIN is found in the Herberton district both in massive and stratified rocks. It was first discovered in the granite hills of Tinaroo, about midway between the coast and Herberton, in the year 1878; and in 1880 the prospectors extended their operations to Herberton. The Kangaroo Hills tin country lies 120 miles to the south, and to the north are the tin-bearing ranges stretching towards Cooktown.

From Herberton as a centre, lode mining has been extended westward to Watsonville, Irvinebank, Eureka Creek, and Koorboora, and south westward to Colgarra, Glenlindale, and California Creek, covering a radius of nearly 40 miles. Alluvial mining has been carried on in the same direction from Herberton to the Tate River and Fossilbrook, a distance of over 80 miles. Within the same limits are developed other minerals of economic value, including lead, silver, copper, antimony, and wolfram. The gold mines of the Hodgkinson, Mareeba, and the Russell lie to the north and east.

#### Lode Mining.

The following observations apply more especially to the neighbourhood of Herberton:—

In this locality the preponderance of the outcropping tin-bearing rock is porphyry. Where seen in the deep ground this rock assumes a granitoid structure, and hornblende at times is present as a constituent. The decomposition of the felspar is characteristic, and streaks of carbonate of lime may be observed in some of the rock joints. White mica is not much present, there being a difference in that respect from the granite country to the west. Tourmaline is likewise rare, contrasting thus with the stanniferous rock at Cooktown. There are outcropping patches of granite, but their extent is limited.

The country is subject to what miners term "slides," normal and reversed faults both being encountered in the mines. It is also traversed by dykes of granitic or basaltic thickness, intersecting the lode at different angles. In two instances, at Herberton and Watsonville, where I have seen such dykes driven through at 300 feet from the surface, a clay seam was followed conforming to the strike of the lode, and the lode fissure reached on the other side; but the lode was not shifted, nor was its course changed. In these instances the dykes were not in themselves stanniferous, but tin was present in the lodes at a short distance from them.

Mr. R. L. Jack, in his geological report, describes the tin-producing veins of this district as metamorphosed igneous dykes, having probably a dioritic origin, and at present consisting mainly of quartzose chlorite and quartzose serpentine. In deep ground I have observed that these veins develop more quartz, and present a greater resemblance to ordinary lode veins than the enclosed mineral being in a more banded form and parallel with the walls of the enclosing fissure. For convenience of description they will be referred to as lodes in the following remarks. The strike of these dyke lodes is more or less meridional, but they have no uniformity in that respect, varying in all directions; nor have they in the direction of their dip, which is sometimes to the right and sometimes to the left, generally at a steep angle. In length they have been traced at surface and underground several hundred feet. In width they vary from 1 or 2 to 25 feet wide, and suddenly expand and contract.

The deposits of tin do not always take place in the chloritic mineral filling up the main fissure, but are sometimes found connected therewith as branch veins, and in such cases the matrix of the ore consists mainly of quartz, the chlorite element being less prominent. When the ore occurs in the lodes with the chlorite the stone is usually very good. The country rock adjacent to the lodes usually shows some evidence of change, its felspar element giving place to dark-coloured hornblende mineral. Joint in the veins and from the contiguous rock generally favour the deposition of tin.

The ore occurs as cassiterite, and mostly in lenticular deposits, varying in size from small pipes up to bodies the whole breadth of the lode, and reaching in length to 40 and 50 feet, and in depth from a few down to several hundred feet. Their yield ranges from 5 per cent. to 40 per cent. and over of oxide. Patches of iron pyrites appearing in the lodes are considered a good indication. Wolfram, fluor spar, galena, and molybdenite also occasionally accompany the tin. Apart from such concentrated bodies, the mass of the mineral constituting these chloritic lodes is, for the most part, poor in tin, probably not yielding over 1 per cent. of that ore. The Great Northern Mine at Herberton has been opened in two lodes of the kind just described, and has produced over 4000 tons of dressed ore. In one of these the ore shoot lasted down to a depth of 570 feet, leaving ore in thin seams still in the bottom. The shoot was found most productive between 100 feet and 300 feet from grass. Numerous deposits of ore have been found in vein in the hills around Herberton; but, except those in which chlorite appears as an element, they have usually not been very productive.

Proceeding westward from Herberton towards Watsonville, over porphyry ridges, at a distance of about 5 miles from the main dividing range is crossed at an elevation of 3550 feet above sea level. On the western slope of this range the traveller passes over an outcrop of stratified rock, consisting of greywacke and shales. The North Australian Mine is opened in this formation. In some of the shallow workings of this mine the tin is associated with rich carbonates of copper, and with iron and arsenical pyrites. The deposits are irregular, and occur between bedding planes of the enclosing rock. There are faults in the locality, indicating a course by which the tin probably arrived at the surface. The North Australian shaft is 200 feet deep. At the bottom a level has been driven through mineralised ground towards the north; but the deep country has not yet developed any important tin deposit. At the commencement of this mine the prospectors discovered a deposit of mineral close to the surface which yielded over 400 tons of mark table ore.

The principal other Watsonville mines are located on the summit and on the northern flank of a portion of the main

\* A paper contributed to the Australasian Association for the Advancement of Science.



dividing range known as the Western Hill, extending 2 miles onward as far as the township of Watsonville. The crown, and to a large extent the northern slope, of the Western Hill consists of porphyry, and the tin-bearing veins present much the same features as those at Herberton, but the ore is more impregnated with copper and arsenical pyrites. The ground is intersected by similar dykes of elvanite. Outcrops of some of the lodes yield small quantities of silver. The deepest mine is the T claim, in which the ore shoot has reached a depth of 330 feet from the surface. Several rich deposits of ore have been worked on the Western Hill Range, extending to a depth of 200 feet; but as yet exploration has not gone much beyond that limit, except in the instance just mentioned. Granite comes in about half way down the face of the hill, northward, in the direction of the township of Watsonville, which is situated at the foot of the range. Some of the mines are opened in the porphyry within a short distance of the granite, but I am not aware of any working in the granite itself.

At Irvinebank, 10 miles west from Watsonville, there is more lode mining. The tin lodes occur here in sedimentary rock, which is understood to correspond with the greywackes and shales of the Montalban silver country, 4 miles further on. The composition of the lodes is mainly chlorite, arsenical and iron pyrites, and sphalerite iron being accessories. The Great Southern and Vulcan Mines in this neighbourhood have produced considerable quantities of ore, as have also several other mines of less importance. In the two referred to the ore deposits have taken the form of large shoots. The Great Southern shoots extended almost vertically from the surface of the ground down to 150 feet, in a massive state, covering a horizontal sectional area of from 600 to 1000 feet. At that depth it diminished in bulk and dipped at a low angle towards the west.

The Vulcan Mine has been productive from the outcrop of the lode down to 300 feet, the ore shoot sometimes extending over an area as large as that of the Great Southern. A fresh body of ore has recently been struck here in the deepest ground. In this mine bismuth in small quantities is associated with the tin. The Great Southern Mine has yielded 1321 tons, and the Vulcan over 1900 tons of dressed tin. Glenlindale, about 10 miles to the south of Irvinebank, furnishes an instance where a large outcrop of tin-bearing stone was found at the junction of the lode with a strong elvan dyke. The country rock is schistose, sandstone, and shale. Granite becomes exposed about 1 mile from the mine, towards the south. The principal constituent of the lode is a hard, dark-coloured, brittle quartz. The heavy surface outcrop, which covered a sectional area of 1000 feet, was followed down to about 150 feet in depth, when it broke up in a mass of vertical layers of sandstone. The yield of ore from the stone taken from this mine was 6 per cent.

At California Creek, 28 miles beyond Irvinebank, to the southwest, cassiterite presents itself in lodes in the granite; but the ground is hard and the veins narrow. In the same neighbourhood tin occurs in lodes in a bed of sedimentary rock lying between granite hills. Where the lodes crop out in the granite the ore is associated with quartz. In the stratified rock it occurs chiefly with chlorite, as at Irvinebank. At Coolgarra, lodes have been wrought in the greywacke and shale, but, granite appears over a large portion of the outlying country. At Koorboora the lodes occur in stratified rock, and at Eureka Creek in both stratified rock and granite. In the Tate district the country rock is granite. At Mount Borunda, in that locality, the ore is developed in floors of decomposing granite, which stretch along the outcrop of the lode. In this case muscovite forms a prominent feature in the stanniferous matrix, and the ore is very free from fowl mineral. None of the mines are much troubled with water. Shafts sunk in the sedimentary rocks encounter most water, those opened in the porphyry being comparatively dry.

#### Alluvial Mining.

When tin ore was discovered in the detritus from the lodes, the search for alluvial ore naturally took an active form, and it has continued ever since. Most of this class of ore is derived from open gullies. It is also obtained from drift now covered by rock of volcanic origin. Titanic iron at times accompanies the tin, but this takes place more particularly in some of the western country, and where the tin-bearing drift lies under decomposing basalt. Gem stones are likewise found.

South of the town of Herberton a large area of tin-bearing drift occurs under a sheet of basalt, having no doubt been brought there from the adjacent hills. It is chiefly worked by tunnelling from the Wild River flats, the tunnels serving for drainage and transit ways from the mines to the surface. Shafts sunk through the basalt to the alluvium go to a depth of 60 feet. In some places a sandy drift settles down between the stanniferous gravel and the volcanic rock, and in others the basalt lies close down on the wash itself. The ground mined over extends to a length of 3 miles, the most important portion of which, at Nigger Creek, seems to have formed the site of a small lake resulting from the meeting of streams from the surrounding country. The gravel varies in thickness from a few inches to 3 or 4 feet. The average yield of the gravel is about 50 lbs. of tin ore to the ton, or 2½ per cent. The grain of the tin is generally well rounded, and the colour grey. Grains of gold are found in this alluvium, and in no appreciable quantity.

Alluvial tin is worked in the gullies and creeks of the granite country between Herberton and Coolgarra, and in the vicinity of that township. Veins showing tin crop out in the granite, but no mines of any importance have yet been opened in them. The Innot mineralised hot springs are situated in Nettles Creek, one of the tin-producing streams of the district. The California Creek granite country, and the Tate River and Fossilbrook granite and porphyry ranges beyond, are sources of stream tin. The Tate district has produced ore of this class during the last 13 years.

#### Product of Tin Ore.

The quantity of marketable tin ore produced in the whole district from the discovery of the field in 1878 to the end of 1893, as obtained from official documents, is 24,845 tons. Of this 4704 tons may be estimated as stream tin, and 20,141 tons as the result of lode mining. The districts of Herberton, Watsonville, and Irvinebank have produced nearly equal quantities of lode tin, the preponderance being at the first two mentioned. The stone crushed has been about 140,000 tons, yielding a product of 14½ per cent. of black tin. The tin ore obtained has been worth on the average about £45 per ton on the ground.

After the stone is taken from the mines, owing to the low yield of the general mass of the vein stuff, and the comparatively heavy charges for carting to the mills and crushing, it is usually subjected to a process of hand-dressing before sending it to the mills, and hence the high average yield of ore from the stone crushed. The yield of metal from the ore produced by the following rock and alluvial formations in the district may be approximately stated as follows, the lode ore not having been put through any process of calcination:—Herberton porphyry: Crushed lode ore, 69 per cent.—Irvinebank sedimentary rock: Crushed lode ore, 62 per cent.—Herberton porphyry: Deep lead alluvial tin, 73 per cent.—Herberton porphyry,

ranges: Alluvial tin lode detritus, 71 per cent.—Tate and Coolgarra, granite: Alluvial tin, 74 per cent.

Until about a year ago it was the custom to crush and prepare all the lode tin for the market without washing, the oxide being sufficiently clean to dress out therefrom a marketable product; but at Irvinebank, where the sedimentary rock prevails, calcination and lixiviation have recently been adopted, by which the volatile and soluble products are got rid of, and the ore raised up to a value of 70 per cent. for metal. Stream tin taken from the old deep drift beds is of a purer quality than that obtained from lodes in the same locality, whether it be in the form of detritus from the open gullies or crushed ore from the mine. It will be noticed from the list of assays just given that granite stream tin yields a larger percentage of metal than either porphyry or sedimentary rock; also that ore mined from the porphyry produces a higher percentage than ore in an unroasted state, taken from rocks of aqueous origin, being less impregnated with minerals which lower its value, such as copper, arsenical pyrites, and bismuth. Stream tin from the granite has mostly a ruby tinge, and has been ascertained to be slightly impregnated with nickel, iron, and lime. The bluish-grey ore from the porphyry contains iron and lime, but no nickel. Mr. Henderson, Government Analyst, in a recent report on the subject, considers that the difference in the colour of the ore is not the result of chemical composition, but is more probably due to its deposition under different physical conditions.

#### Dressing Machinery.

At present there are in operation and in course of erection in the district five stamping mills of from 5 to 15 heads each. They are all driven by steam power, except the Bischoff mill, which is worked by a turbine, operated by water from the Walsh River. The mills are all of the usual type. The process of dressing the ore varies in the different mills, but in all cases the advantage of hydraulic classification, and the cleaning of the rougher portion of the sand by the process of jigging, is recognised. The treatment of the slimes is different in different mills. At Herberton convex and concave buddles are used. At the Bischoff Mill, Watsonville, revolving tables are in favour; and at Irvinebank, Frue vanners and stationary round tables. "Dollying," the process by which the last heavy slimes are eliminated by mixing the ore in tubs, and subsequent percussion, is the last stage in the work of dressing. The dressed ore is then dried and put into bags of about 1 cwt. each, and sent to market. At Irvinebank, the Irvinebank Tin Company have established a smelting furnace, at which most of the ore raised in that locality is smelted. The larger proportion of the product of the district has hitherto been exported to Sydney and smelted there, only a very limited quantity having been sent to England. In the year 1893 there were 783 men employed in lode and alluvial tin mining in the district.

#### THE LONDON AND WESTERN AUSTRALIAN INVESTMENT COMPANY.

The following is from the annual report of the directors:—In presenting their first annual report on the company's affairs, together with balance-sheet to February 8, the directors have pleasure in congratulating the shareholders upon the success which has attended the operations of the company. The company was registered on February 9, 1895, and speedily attained a leading position among Western Australian undertakings, and it is now represented and owns property in all the principal towns of the colony. Your directors, whilst participating, to the great advantage of the company, in the flotations of the London and Western Australian Exploration Company (Limited), with whom, as you are aware, we have a working agreement, have given particular attention to investments of a permanent character, such as town sites, buildings, &c., which are certain to increase in value with the growth of the colony, and, in the meantime, yield a handsome return upon the capital outlay. The valuation of the company's assets for the purposes of the balance-sheet has been made on the following basis:—All properties acquired have been taken at cost price, although in some cases they have doubled and trebled in value; all shares purchased have been taken at the market price, when such was below cost price, and in cases where the market price was more than cost, cost price only has been entered; no credit has been taken for the value of any profit shares in hand, derived from flotations, underwriting, &c.; and this will only be done when such shares are realised. Upon the above basis, the nett profit for the year is £66,227 7s. 2d., which the directors propose to allocate as follows:—To interim dividend of 20 per cent. per annum, paid on ordinary shares, £19,700; to further dividend on ditto at 5 per cent. per annum, £4,925; to dividend on deferred shares (£3 5s. 8d. per share), £19,225; to percentage to manager, £3311 7s. 4d.; to reserve fund, £30,000; and to balance carried forward, £3365 19s. 10d.—Total, £66,227 7s. 2d.—In order to be able to take advantage of the opportunities constantly offering for the lucrative employment of capital in the colony, your directors deem it not only prudent, but necessary, to retain a large cash balance.

MINING OPERATIONS AT COVEN.—A London syndicate, which has chosen for its name that of the Four Ashes Colliery Company (Limited), and in which several local gentlemen are interested, have commenced mining operations in the locality of Four Ashes, Coven, and within a few hundred yards distant from the main line of the London and North-Western Railway. For a matter of three weeks or so the preliminary proceedings necessary for the construction of the shafts and so on have been in progress, and during the last few days the work of boring for coal has been undertaken. The operations promise to have an important bearing upon the development of this rural district of the county. The gentleman in charge of the boring is eminently qualified for the work, and if the result proves as successful as the originators of the scheme anticipate, there is, we believe, likely to be a very considerable addition indeed to working-class house property in and around Coven.

CITY AND GUILDS OF LONDON INSTITUTE.—The Executive Committee of the City and Guilds of London Institute have appointed Mr. W. E. Dalby, since 1891 University Demonstrator of Mechanism and applied Mechanics at Cambridge, to the Professorship of Mechanics and Applied Mathematics at the Institute's Technical College, Finsbury, rendered vacant by the resignation of Professor Perry. Mr. Dalby served a seven years' apprenticeship in the locomotive works of the Great Eastern Railway, and gained a Whitworth Scholarship in 1883. In 1884 he entered the service of the London and North-Western Railway, graduated B.Sc. London in 1890, and in 1894 received the full degree of M.A. *honoris causa* from the University of Cambridge.

MINING IN BRITISH GUIANA.—By the s.s. *Odina*, which sailed for Georgetown a few days ago, the Arakaka Mining Syndicate dispatched a five-head battery of stamps, with accessories, which is destined for a part of their property lately acquired in the north-west district. The machinery is in charge of Mr. B. J. Collings, and will be erected at a convenient spot on the bank of the Barima River to carry out a series of test crushings.

SAN SALVADOR SPANISH IRON ORE COMPANY (LIMITED).—July 27: The s.s. *Deconia* sailed from Santander on the 24th instant, with 1950 tons of this company's ore for Rotterdam.

## THE METAL MARKETS.

THE METAL MARKET, LONDON, JULY 31.  
Copper.

THERE has been only a moderate business doing with consumers, and at lower prices, but in some quarters their stocks must be getting rather low, and no doubt the first improvement in the G.M.B. market will bring out buying orders. In the meantime, however, good quantities of American copper can be had at prices which remain proportionately very cheap as compared with G.M.B.'s. This latter sort declined this week, and as it went down the difference between three months and s.c. disappeared, and at one moment there was a backwardation of 2s. 6d. per ton upon the former position. This was interpreted by the market as a bad feature for copper, and the tone became consequently very flat, but towards the close there was a rally, whilst the two positions again became even as to price, and the tone grew firmer. The course of the speculative market is here given more in detail. On Monday there was a fair turn over at prices ruling lower than those of last week's close, spot G.M.B.'s being done at £18 17s. 6d., and three months at £18 15s. 3d., and £18 17s. 6d. These latter prices were paid for spot on Tuesday, whilst £18 15s. was accepted for three months. On Wednesday values gave way still further, spot changing hands down to £18 10s., and three months at £18 7s. 6d. On Thursday there was a drop to £18 2s. 6d. s.c. and £18 1s. 3d. three months. But this morning a better feeling prevailed, and cash rose to £18 10s., with three months at £18 5s. 9d. The market closed firm at about £18 10s. for both positions.

#### Tin.

The weakness of this article continues, and it receives practically no support from any quarter. Transactions are totally unimportant, and values have tended downwards, cash Straits being done on Monday and Tuesday at £60 7s. 6d., to £60 2s. 6d., and three months at £60 17s. 6d., to £60 16s. 3d., whilst the two positions changed hands on Wednesday as low as £60 and £60 12s. 6d. respectively. Thursday's market was dull, with business at £60 s.c., and £60 11s. 3d. three months, and to-day, after business at £60 2s. 6d. s.c. and £60 13s. 9d. three months. In Holland, the price of Billiton improved from fl 36½ s.c. to fl 36½ in the early part of the week, but closed this morning easier at fl 36½, with three months at fl 36½, and spot Banca at fl 36½.

#### Pig Iron.

Scotland shipped last week about 5030 tons, or 607 tons less than in the same period of last year. The Glasgow market was dull, but fairly steady at the beginning of the week, with s.c. Scotch selling off from 46s. 4d. to 45s. 11d., 46s. was realised on Thursday, 46s. 0½d. to 45s. 11½d. on Friday, the close being at 46s. sellers, with hematite at 46s. 8½d., and Middlesbrough at 38s. 9d.

#### Lead.

has remained dull, with comparatively small demand, and closes at £17 17s. 6d. to £18 15s. 9d. soft foreign, and £11 5s. English.

#### Spelter.

is quiet at £17 10s. to £17 12s. 6d. ordinaries, and £17 15s. to £17 17s. 6d. English.

#### Antimony.

dull at £23 to £20.

#### Quicksilver.

steady at £2 7s. 6d. firsts, and £2 5s. 6d. seconds.

The following are to-night's (July 31) prices of metals—

	Copper	£ s. d.	£ s. d.
Tough cake and ingot	...	50 0 0	52 0 0
Best selected	...	51 0 0	52 0 0
Electrolytic Copper	...	51 0 0	53 0 0
Sheets and sheathing	...	...	59 0 0
Flat bottoms	...	...	62 0 0
Chill bars	...	...	...
Good merchantable, 1/2	...	49 10 0	49 10 0
Copper tubes, seamless	...	...	60 0 8½
BRASS: Wire	...	...	...
Tubes (solid drawn)	...	...	0 0 6
Sheets	...	...	0 0 7
PROSPER BRONZE: Alloys II...	...	...	0 0 8½
" III, or	...	...	...
" VII.	...	...	...
" XI...	...	...	...
" Vulcan brand A1	...	...	...
DUBO METAL	...	...	73 0 0
BULL'S METAL	...	...	65 0 0
FERROBRONZE (Vivian's)	...	...	...
Ingots	...	...	...
Ordinary sheets, plates, bolts and bars	...	...	...
Screw bolts and nuts	...	...	...
Pump rods, plain	...	...	...
" finished	...	...	...
DELTA METAL: No. 4 (per ton)	...	...	...
" Sheets and plates (per lb.)	...	...	...
" Bars, round, square, flat (per lb.)	...	...	...
" hexagon (per lb.)	...	...	73 0 0
Tin	...	...	...
English, ingots, f.o.b.	...	84 0 0	84 5 0
" bars	...	85 0 0	85 5 0
" refined	...	86 0 0	86 5 0
" Straits spot, and three months respectively	...	89 2 6	89 13 9
" Australian, spot, and three months respectively	...	51 0 0	61 11 3
" Banca (in Holland)	...	...	61 12 8
FIX PLATES: Charcoal, best quality	...	per box 0 11 0	0 13 0
" ordinary	...	0 11 0	0 13 6
" Coke, best quality	...	0 9 9	0 10 6
" ordinary	...	0 8 8	0 9 9
These prices of tin plates are f.o.b. at Swansea; at Liverpool 6d. per box more.	...	...	...
IRON	...	...	...
Pig, G.M.B., f.o.b. Clyde, spot	...	...	2 6 0
" Scotch pig, No. 1 Gartsherrie	...	...	2 10 0
" Coltness	...	...	2 12 6
" Clyde	...	...	2 6 0
" Govan	...	...	2 7 3
Bars, Welsh, f.o.b. Wales	...	...	5 10 0
Plates	...	...	...
" Bars, Staffordshire, at works	...	...	5 10 0
" Sheets	...	...	6 15 0
" Plates	...	...	6 10 0
" Hoops	...	...	5 15 0
Ship plates, Middlesbrough	...	...	...
Sheet, English spring	...	...	10 0 0
" cast	...	...	42 0 0
" Rails at works, according to section	...	...	5 0 0
LEAD	...	...	...
Spanish or soft foreign	...	10 17 6	10 18 9
English pig, common	...	...	11 5 0
" L.B.	...	...	11 12 6
" sheet and bar lead	...	...	12 0 0
" pipe	...	...	12 10 0
" red	...	...	14 0 0
" white	...	...	17 10 0
" patent shot	...	...	14 15 0
SPELTER	...	...	...
Silesian ordinary brands	...	17 13 0	17 12 6
" special brands	...	17 15 0	17 17 6
English Swanses	...	18 9 0	18 7 6
Sheet Zinc	...	20 5 0	19 10 0
ANTIMONY	...	...	...
Antimony	...	29 0 0	30 0 0
QUICKSILVER	...	...	...
Flasks, 75 lbs. warrants	...	6 6 6	6 7 6
Ore, c.i.f., U.K. ports	...	...	...
1st quality, 50 per cent. and upwards	...	0 0 11	0 1 1
2nd " 47 per cent. to 50 per cent.	...	0 0 10	0 1 0
3rd " 40 " 47 per cent.	...	0 0 9	0 0 11
ALUMINIUM	...	...	...
98-99½ per cent.	...	Per lb. 0 1 4	Per lb. 0 1 6
99-99 per cent. guaranteed	...	0 1 2	0 1 4

MINING POSSIBILITIES IN CANADA.—The action taken by the Ontario Government in granting encouragement to miners by allowing \$1 for an amount of ore which will smelt 1 ton of pig-iron should go a long way to stimulate the mining industry in the province. It is very doubtful, as the *Toronto World* has taken occasion to remark, whether Canadians realise the great promise there is in mining in the Dominion. The above paper remarks:—Money in large quantities, principally of United States and English capitalists, is being invested in hundreds of Canadian gold and silver mines. Spokane, Washington Territory, is the scene of wonderful activity and excitement over Canadian mines. English and American investors seem to be clinching our most valuable properties. There is more or less activity in Montreal, but as yet the fever seems to have escaped Toronto. A suggestion has been made by a resident of the new town of Rossland, in the Kootenay district of British Columbia, that the Montreal Board of Trade should organise an excursion among business men to inspect the mining districts of the Pacific province. It is pointed out that capitalists and business men of Eastern Canada would find there an extensive field for investment and development of trade.

\* This for analysis from Mr. Jacob's recent investigations, presents indications of a Devonian origin.



# "THE MINING JOURNAL" SHARE LIST.

ABBREVIATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—A, Antimony; Ar, Arsenic; B, Blende; Br, Borax; C, Copper; D, Diamond; G, Gold; I, Iron; L, Lead; M, Manganese; N, Nitrate; P, Phosphate; Q, Quicksilver; R, Ruby; S, Silver; S-L, Silver-lead; Sul, Sulphur; T, Tin; and Z, Zinc. \* In the "Amount of Share" column of British Mines signifies that the mine is conducted on "Cost Book" principles; † in the "Head Office" column of African Mines signifies that the address given is not that of the head office but of a sub, or transfer office; and ‡ following the names of African Mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

\* The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## AFRICAN MINES.

Name.	Closing Price, July 31, 1896.	Closing Price, July 24, 1896.	Am't. of Share.	When last Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Abbott's Con. Reefs	6/ 7/	6/ 7/	1 0	—	—	—	De Kaap	80ad Street Avenue
African Estates	1 1/2	1 1/2	1 0	—	—	—	—	3, Copthall-buildings
Gold Reefs	1 1/2	1 1/2	1 0	—	—	—	—	23, College Hill.
African	1 1/2	1 1/2	1 0	—	—	—	—	34, Clement's lane
Alexander	1 1/2	1 1/2	1 0	—	—	—	—	33, College Hill
Alfred Consolidated	1 1/2	1 1/2	1 0	—	—	—	—	1, Moorgate place.
Alexandra Estate G	1 1/2	1 1/2	1 0	—	—	—	—	16, George street
Anglo	1 1/2	1 1/2	1 0	—	—	—	—	Winchester House
Anglo-French Exp.	1 1/2	1 1/2	1 0	—	—	—	—	5, Princes street
Matabeleland	1 1/2	1 1/2	1 0	—	—	—	—	Winchester House
Appamoo	1 1/2	1 1/2	1 0	—	—	—	—	Dashwood House
Aurora	1 1/2	1 1/2	1 0	—	—	—	—	8, Old Jewry
West United	1 1/2	1 1/2	1 0	—	—	—	—	7, Lothbury
Austral-African	1 1/2	1 1/2	1 0	—	—	—	—	1, Lothbury
Bakke Eersterling G	1 1/2	1 1/2	1 0	—	—	—	—	1, Lothbury
Land	1 1/2	1 1/2	1 0	—	—	—	—	25, Gracechurch-st.
Bantjes Consol. G	1 1/2	1 1/2	1 0	—	—	—	—	15, Geo. st., Mn Ho.
Barnato Bank	1 1/2	1 1/2	1 0	—	—	—	—	7, Lothbury
Consol	1 1/2	1 1/2	1 0	—	—	—	—	17, Basilhall-street
Barroet	1 1/2	1 1/2	1 0	—	—	—	—	12, St. Swithin's-lane
Bechuanaand Exp.	1 1/2	1 1/2	1 0	—	—	—	—	72, Basilhall street
Trad G & S	1 1/2	1 1/2	1 0	—	—	—	—	—
Big Golden Quarry	1 1/2	1 1/2	1 0	—	—	—	—	—
Block "B" Lang.	1 1/2	1 1/2	1 0	—	—	—	—	—
Bonanza	1 1/2	1 1/2	1 0	—	—	—	—	—
Brit. S. A. Char.	1 1/2	1 1/2	1 0	—	—	—	—	—
Buffelsdorp G	1 1/2	1 1/2	1 0	—	—	—	—	—
Central	1 1/2	1 1/2	1 0	—	—	—	—	—
Consolidated	1 1/2	1 1/2	1 0	—	—	—	—	—
Cape Asbestos	1 1/2	1 1/2	1 0	—	—	—	—	—
Copper	1 1/2	1 1/2	1 0	—	—	—	—	—
6% Pref.	1 1/2	1 1/2	1 0	—	—	—	—	—
Cassell Coal	1 1/2	1 1/2	1 0	—	—	—	—	—
Cent. de Kaap	1 1/2	1 1/2	1 0	—	—	—	—	—
Hoofdt Deep	1 1/2	1 1/2	1 0	—	—	—	—	—
Champ d'Or	1 1/2	1 1/2	1 0	—	—	—	—	—
Charterland G.F.	1 1/2	1 1/2	1 0	—	—	—	—	—
Chimes West	1 1/2	1 1/2	1 0	—	—	—	—	—
City and Sub. N.W.G	1 1/2	1 1/2	1 0	—	—	—	—	—
Con. Bultfontein G	1 1/2	1 1/2	1 0	—	—	—	—	—
Con. Deep Levels G	1 1/2	1 1/2	1 0	—	—	—	—	—
Con. G. Fields S.A.	1 1/2	1 1/2	1 0	—	—	—	—	—
Do. 6% Pref.	1 1/2	1 1/2	1 0	—	—	—	—	—
Do. 5% Deben.	1 1/2	1 1/2	1 0	—	—	—	—	—
Crown Deep G	1 1/2	1 1/2	1 0	—	—	—	—	—
Reef G	1 1/2	1 1/2	1 0	—	—	—	—	—
De Beers Consol. D	1 1/2	1 1/2	1 0	—	—	—	—	—
Do. 5% 1st Deb.	1 1/2	1 1/2	1 0	—	—	—	—	—
Do. 5% 2nd Deb.	1 1/2	1 1/2	1 0	—	—	—	—	—
Doornkop	1 1/2	1 1/2	1 0	—	—	—	—	—
Driefontein	1 1/2	1 1/2	1 0	—	—	—	—	—
Durban Roadport G	1 1/2	1 1/2	1 0	—	—	—	—	—
Deep	1 1/2	1 1/2	1 0	—	—	—	—	—
Eastleigh G	1 1/2	1 1/2	1 0	—	—	—	—	—
East Orion	1 1/2	1 1/2	1 0	—	—	—	—	—
Hand	1 1/2	1 1/2	1 0	—	—	—	—	—
Exploration	1 1/2	1 1/2	1 0	—	—	—	—	—
Exploring L & M	1 1/2	1 1/2	1 0	—	—	—	—	—
Ferreira G	1 1/2	1 1/2	1 0	—	—	—	—	—
French Rand	1 1/2	1 1/2	1 0	—	—	—	—	—
Golden Deep G	1 1/2	1 1/2	1 0	—	—	—	—	—
Golden Est. G	1 1/2	1 1/2	1 0	—	—	—	—	—
Main Reef	1 1/2	1 1/2	1 0	—	—	—	—	—
George Goch	1 1/2	1 1/2	1 0	—	—	—	—	—
Glencairn G	1 1/2	1 1/2	1 0	—	—	—	—	—
Golden Dove	1 1/2	1 1/2	1 0	—	—	—	—	—
Gld. Fls. Deep. G	1 1/2	1 1/2	1 0	—	—	—	—	—
G.F. of Lydenburg	1 1/2	1 1/2	1 0	—	—	—	—	—
G.F. of Mashonid.	1 1/2	1 1/2	1 0	—	—	—	—	—
G.F. of T. de Fuego	1 1/2	1 1/2	1 0	—	—	—	—	—
Grassop G	1 1/2	1 1/2	1 0	—	—	—	—	—
Gt. Estn. Colliery	1 1/2	1 1/2	1 0	—	—	—	—	—
Griqualand W. D	1 1/2	1 1/2	1 0	—	—	—	—	—
Heidelberg. Est. Ex.	1 1/2	1 1/2	1 0	—	—	—	—	—
Henderson's Trans	1 1/2	1 1/2	1 0	—	—	—	—	—
Henry Nourse G	1 1/2	1 1/2	1 0	—	—	—	—	—
Hetty	1 1/2	1 1/2	1 0	—	—	—	—	—
Joe's Reef G	1 1/2	1 1/2	1 0	—	—	—	—	—
Johannesburg Invest	1 1/2	1 1/2	1 0	—	—	—	—	—
Pioneer	1 1/2	1 1/2	1 0	—	—	—	—	—
Jubilee	1 1/2	1 1/2	1 0	—	—	—	—	—
Jumpers	1 1/2	1 1/2	1 0	—	—	—	—	—
Deep	1 1/2	1 1/2	1 0	—	—	—	—	—
Kimberley D	1 1/2	1 1/2	1 0	—	—	—	—	—
Rdpt.	1 1/2	1 1/2	1 0	—	—	—	—	—
Klerksdorp	1 1/2	1 1/2	1 0	—	—	—	—	—
Knight's Deep	1 1/2	1 1/2	1 0	—	—	—	—	—
Kofffontein D	1 1/2	1 1/2	1 0	—	—	—	—	—
Lancaster	1 1/2	1 1/2	1 0	—	—	—	—	—
Langlaagte Est. G	1 1/2	1 1/2	1 0	—	—	—	—	—
Royal	1 1/2	1 1/2	1 0	—	—	—	—	—
Star	1 1/2	1 1/2	1 0	—	—	—	—	—
Lisbon-Berlyn G	1 1/2	1 1/2	1 0	—	—	—	—	—
Lon. Paris Fin & M.	1 1/2	1 1/2	1 0	—	—	—	—	—
London & S. A. Ex.	1 1/2	1 1/2	1 0	—	—	—	—	—
Louisa's Est. Est.	1 1/2	1 1/2	1 0	—	—	—	—	—
Lydenburg Estate	1 1/2	1 1/2	1 0	—	—	—	—	—
Id. & Est.	1 1/2	1 1/2	1 0	—	—	—	—	—
M.G. Est.	1 1/2	1 1/2	1 0	—	—	—	—	—
Main Reef (New) G	1 1/2	1 1/2	1 0	—	—	—	—	—
Malmadi Gold Syn	1 1/2	1 1/2	1 0	—	—	—	—	—
Main Louise	1 1/2	1 1/2	1 0	—	—	—	—	—
Marivalde Nigel	1 1/2	1 1/2	1 0	—	—	—	—	—
Mashon. Agency	1 1/2	1 1/2	1 0	—	—	—	—	—
Central	1 1/2	1 1/2	1 0	—	—	—	—	—
Matabele's G. RY	1 1/2	1 1/2	1 0	—	—	—	—	—
May Con. (New) G	1 1/2	1 1/2	1 0	—	—	—	—	—
Meyer & Charl.	1 1/2	1 1/2	1 0	—	—	—	—	—
Mineva	1 1/2	1 1/2	1 0	—	—	—	—	—
Mine Selection	1 1/2	1 1/2	1 0	—	—	—	—	—
Modderfontein G	1 1/2	1 1/2	1 0	—	—	—	—	—
"B" Extension	1 1/2	1 1/2	1 0	—	—	—	—	—
Molybdenum Consol.	1 1/2	1 1/2	1 0	—	—	—	—	—
Moodies	1 1/2	1 1/2	1 0	—	—	—	—	—
Mcnamibque	1 1/2	1 1/2	1 0	—	—	—	—	—
Namaqua C	1 1/2	1 1/2	1 0	—	—	—	—	—
New African	1 1/2	1 1/2	1 0	—	—	—	—	—
Chimes G	1 1/2	1 1/2	1 0	—	—	—	—	—
Comet	1 1/2	1 1/2	1 0	—	—	—	—	—
Crosses G	1 1/2	1 1/2	1 0	—	—	—	—	—
Gordon G	1 1/2	1 1/2	1 0	—	—	—	—	—
Hartree G	1 1/2	1 1/2	1 0	—	—	—	—	—
Jagersfontein D	1 1/2	1 1/2	1 0	—	—	—	—	—
Kleinfontein G	1 1/2	1 1/2	1 0	—	—	—	—	—
Midas	1 1/2	1 1/2	1 0	—	—	—	—	—
Primrose G	1 1/2	1 1/2	1 0	—	—	—	—	—
Rietfontein G	1 1/2	1 1/2	1 0	—	—	—	—	—
S. Augustine G	1 1/2	1 1/2	1 0	—	—	—	—	—
S. Bess G	1 1/2	1 1/2	1 0	—	—	—	—	—
Steyn's Est.	1 1/2	1 1/2	1 0	—	—	—	—	—

## AFRICAN MINES—(Continued).

Name.	Closing Price, July 31, 1896	Closing Price, July 24, 1896.	Am't. of Share	When last Xd and Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.	
Nigel ..... G	3 3/4	3 3/4	1 0	1st Aug 10 '95	1 0 0	160,000	Rand.....	96, Gresham Ho., E.C.	
" Deep .....G	1 1/2	1 1/2	1 0	—	1 0 0	195,000	Heidelberg	8 Old Jewry.	
North Randfontein	2 1/2	2 1/2	1 0	—	1 0 0	235,000	—	8, Princes street	
Nourse Deep.....	5 5/8	5 1/2	1 0	—	1 0 0	375,000	Rand.....	120, Bishopsgt.-st., W.	
Oceana .....	1 1/2	1 1/2	1 0	1/- Nov. 28 '95	1 0 0	357,400	Witbrg Lvn	13, Austin Friars,	
" Development	1 1/2	1 1/2	1 0	—	1 0 0	50,000	Heidebrg.	"	
" Minerals ....	1 1/2	1 1/2	1 0	—	1 0 0	5 0,000	"	"	
Orange F.S.E. ...D	3 1/4	3 1/4	1 0	1/6 Apr. 27, '96	1 0 0	284,000	Orange F.S.	10, Moorgate-street,	
Orion (New).....G	1 1/2	1 1/2	1 0	10% Aug. '95	1 0 0	31,000	—	8, Old Jewry.	
Paarl Central ...G	1 1/2	1 1/2	1 0	—	1 0 0	138,750	Transvaal.	120, Bishopsgt. st. W.	
G Pardy's Mozambq	1 1/2	1 1/2	10/	1st Mar 12 '96	0 10 0	60,000	S.E. Africa	Broad St. Avenue.	
Pigg's Peak .....G	5 5/8	5 5/8	1 0	—	0 17 0	200,000	Swaziland.	6, Queen-street-place	
Porges Randfont.	1 1/2	1 1/2	1 0	2/ Feb. 13 '96	1 0 0	457,500	Rand.....	1, Bank Buildings	
Potchefstroom...G	1 1/2	1 1/2	1 0	—	1 0 0	380,750	Potchefst.	19, Bury-st., E.C.	
Princess Estate G	1 1/2	1 1/2	1 0	—	1 0 0	35,000	—	35, Cornhill, E.C.	
Rand Central Ore	1 1/2	1 1/2	2 2 1/2	1 0	25 p.c. Aug. '95	1 0 0	115,000	—	8, Princes-street, E.C.
Randfontein ....G	2 1/2	2 1/2	1 0	1st June 1, '96	1 0 0	2,000,000	Rand.....	1, Bank Buildings	
Rand Mines .....G	29 1/2	29 1/2	30 1/2	1 0	—	332,750	—	123, Bishopsgt. st. W.	
G Rand-Rhodesia Ex	19 1/2	19 1/2	1 0	10 p.c. Oct. '95	1 0 0	25,000	Rh Rhodesia	143, " "	
Rhodesia Ex & Dv.	5 5/8	5 5/8	1 0	—	1 0 0	50,000	Mt & Mash'.	15 & 16, Geo. St. E.	
Robinson (S.A.) Bank	5 5/8	5 5/8	4 0	1/ Apr. 15, '96	1 0 0	740,000	S. Africa ...	8, Prince's-street	
" Deep.....	5 5/8	5 5/8	1 0	—	1 0 0	500,000	Mt R's Rand	124, Bishopsgt. st.	
" Diamond	1 1/2	1 1/2	1 0	—	1 0 0	330,000	Kaai Valley	8, Prince's-street	
" Gold.....	1 1/2	1 1/2	5 0	5/ July 30 '96	5 0 0	550,000	M. R. Rand	28, Austin Friars	
" Randfont.	1 1/2	1 1/2	1 0	—	1 0 0	517,000	Rand.....	8, Prince's-street	
Rodepoort Deep	2 1/2	2 1/2	1 0	—	1 0 0	170,000	"	8, Old Jewry, E.C.	
Rodepoort Un. G	4 1/2	4 1/2	1 0	2/ July 30 '96	1 0 0	130,000	—	Warford-court, E.	
Ross Deep.....	5 5/8	5 5/8	1 0	—	1 0 0	300,000	M. R. Rand	30-31, S. W. St. W.	
Rothery block....	8/ 10/	8/ 10/	1 0	—	—	—	—	55, Bishopsgate st.	
St. Helen's Devel.	2 1/2	2 1/2	1 0	—	1 0 0	47,950	S. Africa ...	13, St. Helen's Place	
Salisbury New ...G	3 1/2	3 1/2	1 0	—	1 0 0	93,000	Rand.....	96, Graham Ho., E.C.	
Sheba .....	2 1/2	2 1/2	1 0	1/- June 28 '96	1 0 0	850,000	Lydenburg	14, St. Helen's place.	
Simmer & Jack...G	19 1/2	19 1/2	1 0	2/ Aug 14 '95	1 0 0	250,000	Rand.....	8, Old Jewry.	
S.A. GoldTrust New	7 1/2	7 1/2	1 0	7/ June 26 '96	1 0 0	250,000	S. Africa ...	"	
South West Rand	2 1/2	2 1/2	1 0	—	1 0 0	155,000	—	Winchester House	
Spitkop (New) G	1 1/2	1 1/2	1 0	—	1 0 0	99,070	Lydeburg	15, Bishopsgt. st. W.	
G Stanhope	1 1/2	1 1/2	1 0	2/- Oct. 20 '95	1 0 0	34,000	—	96, Gresham Ho., E.C.	
G Sutherland R. ...G	1 1/2	1 1/2	1 0	—	1 0 0	220,000	Zoutpan bg	Dashwood Ho.	
Trans Concessions...	1 1/2	1 1/2	1 0	1st Jy. 22 '95	1 0 0	392,000	—	Gresham House	
Tati. Coal Trust...	1 1/2	1 1/2	1 0	1/- Apr. 29, '96	1 0 0	429,965	Rand.....	Broad-st. House, E.C.	
" Consolidated	1 1/2	1 1/2	1 0	—	1 0 0	485,131	Transvaal	120, Bishopsgt. st. W.	
" Est. & Dev.	1 1/2	1 1/2	1 0	—	1 0 0	428,600	"	10, New Broad-st., E.C.	
" Gold Fields	3 1/2	3 1/2	1 0	8/- Apr. 15 '96	1 0 0	125,000	S. A. Rand	120, Bishopsgt.-st. W.	
" Land.....	3 1/2	3 1/2	1 0	—	1 0 0	79,915	Transvaal	5, Abchurch Lane	
Treasury.....G	2 1/2	2 1/2	1 0	12 1/2% Sep. '94	1 0 0	135,000	Rand.....	Warford Court	
United Explorats.	1 1/2	1 1/2	1 0	—	1 0 0	250,000	—	121, Bishopsgt. St.	
Un. Ivy Reef.....G	7 1/2	7 1/2	1 0	6/ June 26 '96	1 0 0	45,000	Transvaal	110, Cannon-street.	
U. Langlaagte(S)G	1 1/2	1 1/2	1 0	—	1 0 0	146,000	Rand.....	85, Gresham Ho., E.C.	
" Pioneer.....	1 1/2	1 1/2	1 0	—	1 0 0	75,000	De Kaap ...	16, St. Helen's-pl., E.C.	
Van Ryn .....	4 1/2	4 1/2	1 0	4/- Jan. 16 '96	1 0 0	160,000	Rand.....	13, St. Swithin's-ls.	
" North ...	4 1/2	4 1/2	1 0	—	1 0 0	116,091	—	"	
" West.....	4 1/2	4 1/2	1 0	—	1 0 0	120,000	Rand.....	"	
Vent'skraal	1 1/2	1 1/2	1 0	—	1 0 0	125,000	Rooderand	8, Old Jewry	
Vesta .....	7 1/2	7 1/2	1 0	—	1 0 0	130,000	Rand.....	Winchester House	
Village Main Reef	5 1/2	5 1/2	1 0	1st June 26 '96	1 0 0	177,000	—	8, Old Jewry.	
Vogelstruis Estate	4 1/2	4 1/2	1 0	—	1 0 0	200,000	"	Winchester House	
" Const. Deep ...	4 1/2	4 1/2	1 0	—	1 0 0	327,750	"	16, Geo. St. Mn. Hs.	
Wassau .....	1 1/2	1 1/2	1 0	—	1 0 0	100,000	Gold Coast	147, Cannon-street	
Wemmer.....G	8 1/2	8 1/2	1 0	10/ Apr. 29 '96	1 0 0	55,000	Rand.....	19, Bury-street, E.C.	
Western Nigel...	3 1/2	3 1/2	1 0	—	1 0 0	207,000	Main Reef	Suffolk House	
West Rand.....G	2 1/2	2 1/2	1 0	—	1 0 0	240,000	Rand.....	13, Geo. St., Mn. Hs.	
Willoughby's Con.	1 1/2	1 1/2	1 0	—	1 0 0	700,000	Mashonaland	3, Copthall-bldg.	
Witwatersrand G	6 1/2	6 1/2	1 0	—	1 0 0	250,000	Rand.....	19, Bury-st., E.C.	
Woluhuter.....G	6 1/2	6 1/2	1 0	1st Apr 26 '94	1 0 0	130,000	—	Warford-court, E.	
Worcester.....G	4 1/2	4 1/2	1 0	3/- June 12 '95	1 0 0	90,727	Rand.....	8, Old Jewry.	
Zimbabwe Explora.	2 1/2	2 1/2	1 0	—	1 0 0	65,000	Transvaal	30-31, Clement's-ls.	



## "THE MINING JOURNAL" SHARE LIST—(Continued)

## AUSTRALIAN AND NEW ZEALAND MINES.

Name.	Closing Price, July 31, 1896.	Closing Price, July 24, 1896.	Am't. of Share.	When last X'd and Dividend.	Called up per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Achilles Gold Fld.	1/6 3/4	2/6 3/4	2/6	2/ July 15 '96	0 2 6	842,455	Otago, N.Z.	11, Poultry.
Achilles Lamp G.	1/6 3/4	1/6 3/4	1 0	—	1 0 0	100,000	L'An N.W.	4-5, Throg. Avenue.
Anglo-Cont. Corp.	1/4 1/2	1/4 1/2	1 0	150 1/2 '95	1 0 0	125,000	—	Worcester House.
French Exp.	3/4 1/2	3/4 1/2	1 0	5/- Oct 30 '95	0 10 0	40,000	W. Austral.	3, Princes Street.
Ger. Explor.	1/4 1/2	1/4 1/2	1 0	—	1 0 0	100,000	N. Zealand	30, S. Swithin's Lane
Aroha	3/4 1/2	3/4 1/2	1 0	—	1 0 0	9,000	Otago, W.A.	4, St. Winchester St.
Arrow Brown Mines	3/4 1/2	3/4 1/2	1 0	—	1 0 0	375,000	Gymp. Q'd	20, Bucklebury
Assoc. Gold Mines	3/4 1/2	3/4 1/2	1 0	—	1 0 0	10,000	S. Austral.	6, Queen-st. place
Australian	3/4 1/2	3/4 1/2	1 0	—	1 0 0	218,315	42, New Broad-street	Winchester House.
Aust. Hill Con.	1/9 2/3	1/9 2/3	1 0	—	0 19 3	574,799	Bar. N.W.	Hillgrove, N.S. Wales
Baker's Creek	3/4 1/2	3/4 1/2	1 0	—	0 17 6	50,000	W. Austral.	35, Coleman Street.
Bamboo Queen & R.	5/ 5/6	5/ 5/6	1 0	—	1 0 0	480,000	W. Austral.	151, Cannon Street.
Bayley's New & R.	5/ 5/6	5/ 5/6	1 0	—	1 0 0	150,000	Coolgardie	4, Bishopsgate St. Wn
Big Blow	1/12 1/2	1/12 1/2	1 0	—	1 0 0	140,000	Coolgardie	1, Metal Exch. Bldgs
Black Flag Con.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	500,000	W. Austral.	6, Dashwood House.
Prop. G.	3/3 3/4	3/3 3/4	2/6	—	1 0 0	82,298	Otago, N.Z.	15, S. Helen's Place
Blagrove Freehold	1/1 1/2	1/1 1/2	1 0	—	1 0 0	120,000	O.T. Q'land	15, S. Helen's Place
Blue Spur and G.	8/6 9/6	7/- 8/-	1 0	—	1 0 0	250,000	—	Charters Towers.
Boonle Dundee G.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	70,000	—	Charters Towers.
Brilliant	1/12 1/2	1/12 1/2	1 0	—	1 0 0	70,000	—	Charters Towers.
Black G.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	70,000	—	Charters Towers.
St. Geo. G.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	70,000	—	Charters Towers.
Brit. Brok. Hill S	2/ 3/4	2/ 3/4	1 0	—	1 0 0	400,000	W. Feather	57, Moorgate Street.
Broad Arrow	2/ 3/4	2/ 3/4	1 0	—	1 0 0	980,000	N. S. Wales	3, St. Winchester st.
Broken Hill Prop. S	2/ 3/4	2/ 3/4	1 0	—	1 0 0	8,5 0	Hannan's	4, St. Winchester st.
Woolahilly Prop.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	160,000	Coolgardie	Copthall House.
Woolahilly Prop.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	160,000	Coolgardie	Copthall House.
Cassidy Hill	1/12 1/2	1/12 1/2	1 0	—	1 0 0	93,522	Coolgardie	9-10, King Street, E.C
Central Pioneer G	1/12 1/2	1/12 1/2	1 0	—	1 0 0	200,000	W. Austral.	1, Met. Exch. Bldgs
Exp. & Luv. G.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	122,000	W. Austral.	2, "
W. A. G.	1/12 1/2	1/12 1/2	1 0	—	1 0 0	122,000	W. Austral.	2, "
Charters Tow. G	1/ 1/6	1/ 1/6	1/9	—	0 9 6	200,000	Queensland	110, Cannon Street
Colonial Finance	1/6 3/4	1/6 3/4	1 0	—	0 10 0	21,140	W. Austral.	139
Gold Fields	1/6 3/4	1/6 3/4	1 0	—	0 12 6	75,250	W. Austral.	70, Cornhill.
Con. G. M. of W. A.	1/6 3/4	1/6 3/4	1 0	—	1 0 0	246,779	Pilbara	35, Moorgate Street.
Murchison	1/6 3/4	1/6 3/4	1 0	—	1 0 0	225,533	Murchison	Broad Street House.
Cont. W. A. Trust	1 1/2	1 1/2	1 0	—	1 0 0	104,457	W. Austral.	Broad Street House
Coolgardie Gold	1 1/2	1 1/2	1 0	—	1 0 0	90,000	Coolgardie	Broad Street Avenue
W. A. G.	1 1/2	1 1/2	1 0	—	1 0 0	150,000	Queensland	30, S. Swithin's Ln.
W. A. G.	1 1/2	1 1/2	1 0	—	1 0 0	100,000	Hannan's	110, Cannon-st. E.C
W. A. G.	1 1/2	1 1/2	1 0	—	1 0 0	115,000	Queensland	110, Cannon-st. E.C
W. A. G.	1 1/2	1 1/2	1 0	—	1 0 0	124,590	Queensland	110, Cannon-st. E.C
Day Dawn (New) G	1/4 1/2	1/4 1/2	1 0	—	1 0 0	498,400	—	15, S. Helen's Place
P. C. G.	3/8 1/2	3/8 1/2	1 0	—	1 0 0	490,000	—	Winchester Ho. E.C
Eaglehawk	1/ 1/6	1/ 1/6	1 0	—	0 18 0	120,000	Victoria	71-72, King Wm. St.
Eagle's Nest	1/ 1/6	1/ 1/6	1 0	—	1 0 0	2,500	Mt. Margt.	Finsbury House.
Explorers Synd.	1/ 1/6	1/ 1/6	1 0	—	1 0 0	9,000	W. Austral.	Copthall House
Fingall M's. Extd	1/ 1/6	1/ 1/6	1 0	—	1 0 0	150,000	—	4, Sun Court
Fingall M's. Extd	1/ 1/6	1/ 1/6	1 0	—	1 0 0	60,000	—	18, St. Swithin's Ln
Gibraltar Cons.	1/ 1/6	1/ 1/6	1 0	—	1 0 0	300,000	N. S. Wales	6, Queen-street-place
Gladiator	1/ 1/6	1/ 1/6	1 0	—	1 0 0	100,000	W. Austral.	43, Throonneedle st.
Glenrock	1/ 1/6	1/ 1/6	1 0	—	1 0 0	225,000	N. Zealand	3-5, Queen-st. E.C.
Golden Cement G	1 1/2	1 1/2	1 0	—	1 0 0	175,000	W. Austral.	3, Princes Street, E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	100,000	Queensland	34-36, Gresham-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	150,000	W. Austral.	13, Helen's Place
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	90,000	—	9-10, King Street, E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	120,000	—	4, Bishopsgate-street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	80,000	—	20, Bishopsgate-st Wn
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	3, Gracechurch st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Worc. Ho., Walbrook
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	3, Princes Street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Broad Street House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	13-14, Abchurch Ln.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	82, Gordon st., Glas.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	9, S. Mildred's Ct.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	53-54, Gracechurch st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	29, S. Swithin's Lane
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Suffolk House, E.C.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	5, Moorgate-st. Bldgs
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	15, St. Swithin's Ln.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	33, Cornhill.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	20, Bucklebury
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	139, Cannon Street.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Bartholomew Ho.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Finsbury House E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood Ho. E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	1, Queen Vic. St.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Copthall House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	70-71, Bishopsgate st
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	20, Throonneedle-st
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	9, New Broad-street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	15, Abchurch Lane.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Throgmorton House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	34-36, Gresham-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	18, St. Swithin's Ln
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	90, Cannon Street.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Leadenhall Buildings.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	79, Queen Street.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	15, Austin Friars.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	3, Gracechurch-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Broad Street Ho.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	24 Old Broad Street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	28 & 29, S. Swithin's Ln
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Broad Street House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	72a, Old Broad Street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	15, S. Helen's Place
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Bishopsgate House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Finsbury House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	28, St. Swithin's Ln.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	9, Gracechurch-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	44, Coleman Street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	32, College Hill.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	71-72, King Wm. St.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	3, S. Swithin's Lane
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	15, Helen's Place
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	225, Winchester Ho.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	11, Abchurch Lane
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	10, New Broad Street
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	77, Bishopsgate-st
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Winchester House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	38, Coleman-street.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	4, Bishopsgate-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	5, Old Jewry, E.C.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Broad Street Avenue
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Winchester Ho. E.C.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	5, Drapers' gardens
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	29, Great Wm. St.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	30, S. Swithin's Lane
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	83, New Broad St.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	28-9, S. Swithin's Ln
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Dashwood House.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	32, Gresham-st. E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Abchurch Ln. E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	23, College Hill
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	63, New Broad St.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	43, Throonneedle st
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	Broad Street House
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	77, Bishopsgate-st.
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	44-53, Moorgate court
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	33, Old Broad-st. E.C
G. Crown	1 1/2	1 1/2	1 0	—	1 0 0	240,000	—	



## THE MINES BILL.

## DEBATE IN THE HOUSE.

ON consideration of the Coal Mines Regulation Act (1887) Amendment (No. 2) Bill as amended in the Grand Committee,

Mr. D. THOMAS moved the following clause:—"For Sub-section 1 of Section 47 of the principal Act shall be substituted the following sub-section: The parties to the arbitration are in this section deemed to be the owner-agent or manager of the mine on the one hand, and a majority of the workmen employed in the mine on the other." The hon. gentleman said the amendment was intended to place the workmen in the same position as the employer. If there was an appeal to arbitration the workmen would have practically no authority at all.

Sir M. WHITE RIDLEY said he could not accept the amendment. The parties to the arbitration were to be the Home Secretary on the one side and the mine owners on the other, but he did not agree with any alteration which should make the two parties the owner on one side and the employer on the other, and thus eliminating the Home Secretary.

Mr. J. WILSON (Durham) said he hoped the amendment would be withdrawn, because it took out from the arbitration the authority of the most responsible person.

The amendment was withdrawn.

## Security for Arbitration Costs.

Mr. ABRAHAM moved an amendment, the object of which was to omit the provision in the Bill that security should be given for costs before the workmen could go into arbitration proceedings. The hon. member said he was afraid this provision would prevent the great majority of the workmen in the United Kingdom being represented in an arbitration. It was said that the arbitrator was not to be interested in the mine, but he believed that difficulty could be got over. And it must be remembered that when the rules were made by the Court for one mine these rules would apply to the whole district. If the Court was to be a real one, where employers, as well as employees, were to be represented, this provision must be eliminated. He asked the House to remove such an unjust and unnecessary obstacle in the way of sending representatives of the workmen to the Court.

Sir G. OSBORNE MORGAN also appealed to the right hon. gentleman to accept the amendment. He had considerable experience in regard to questions and costs, and he would point out that those who had to find this security were poor working men who would have great difficulty in doing what the clause called upon them to do.

The HOME SECRETARY said although he would be glad to make any concession that was in his power, he could not do so in the present case. What he was proposing in this Bill was to give the workmen a special right which they had never had before. He would further point out that this was not his own clause. It was drawn in concert with the two great associations representing both sides, and in deference to the representations made to him on the subject. Nothing more was meant by the clause than that the arbitrator or umpire might take such security as they might think necessary for the Court, the object being to guard the Court from an unnecessary prolongation of the proceedings. He could not see that was an unreasonable proposition, or where the hardship came in, and he, therefore, hoped the clause would be allowed to remain as it now was.

Mr. ABEL THOMAS urged the right hon. gentleman to reconsider his decision and to accept the amendment.

Sir W. HARCOURT hoped the Home Secretary would make it clear that the costs in this case were not the costs of arbitration, for that would be distinctly unfair. The parties to the arbitration were the Secretary of State and the mine-owners; the workmen came in only as protecting their own interests and were not actual parties.

Mr. J. WILSON (Durham) suggested that the question of costs should be made dependent on the *bona fides* of the parties.

Mr. J. B. BALFOUR was of opinion that all legitimate objects would be satisfied by allowing the question of costs to await the award.

Mr. TOMLINSON said it was rather unfortunate that they were discussing the framing of this clause on the report stage for the first time. It was framed by agreement between workmen and employers, and he would be quite disposed to accept any modification the Attorney-General might suggest, for he admitted that it was not altogether happily worded. He did not suppose that any hon. member believed that the employers wished to put the workmen in a worse position than that to which they were entitled. He understood that it was only desired to guard against costs being unnecessarily incurred by workmen urging claims of an unsubstantial kind.

Mr. McKENNA said if the Attorney-General looked at the terms of Clause 2, he would see the absolute necessity of accepting the amendment of his hon. friend (Mr. Abraham). The power of the workmen to attend an arbitration was such power as was granted by the arbitrator or umpire. They were to take part in the arbitration to such an extent, and in such a manner, as the arbitrator or umpire directed.

Mr. BRYN ROBERTS said the amendment was directed not against the payment of costs, but against security being provided beforehand for their payment. It seemed to him that instead of insisting on security being provided, the parties represented should give an undertaking to pay the costs if awarded against them.

The HOME SECRETARY said that the intention of the Government was to follow the procedure of the Factory Act of last year.

Mr. PICKARD asked whether the men would have to pay their own costs only, or the costs of others connected with the arbitration. The men were willing to pay their own costs, or if they initiated an arbitration to pay the costs if the case went against them, but they strongly objected to being placed in an invidious position, and to being called upon to give a security from which the colliery owner was free.

Mr. PRITCHARD-MORGAN suggested that the costs to which workmen could be liable, should be limited to (say) £10 or £20.

The House divided—

For the amendment ..... 87  
Against ..... 150

Majority against ..... 63

The ATTORNEY-GENERAL said he had understood those who represented the workmen to say that they would be satisfied if the clause threw upon them such costs only as were imposed upon them by coming into the Arbitration Court; and with the object of meeting them, he proposed the insertion after "costs" of the words "occasioned by such representation." The matter would then be within the discretion of the arbitrator, and he thought the amendment should be accepted.

Mr. S. EVANS suggested the introduction of the words "such extra costs occasioned by the representation."

The ATTORNEY-GENERAL said these words would not fit in with the clause.

Mr. S. EVANS understood from the right hon. gentleman that the arbitrator might demand security or not.

The ATTORNEY-GENERAL signified assent.

Mr. S. EVANS said he hoped that answer would be borne in mind. (Laughter.)

Sir W. HARCOURT was fully aware of all the difficulties which bore upon this subject. The question of costs would be a great stumbling block in the way of miners taking part in the consideration of matters which concerned them. However, as long as they agreed to submit the rules to arbitration the difficulty as to costs would continue.

The words proposed to be inserted by the Attorney-General were then agreed to.

Mr. PRITCHARD-MORGAN moved to limit the security to be provided by workmen to £20. He said he would rather see the clause struck out altogether than that the workmen should be called upon to give security to a large amount.

The ATTORNEY-GENERAL said he could not accept the amendment. In the interest of the workmen he suggested that the question of security should be left to the discretion of the arbitrator.

Mr. McKENNA supported the amendment.

For the amendment .. .. . 91  
Against .. .. . 171

Majority against .. .. . 80

## Safety Lamps.

Mr. ABRAHAM (Rhondda) moved the omission of the word "or" in the clause which provided that a safety lamp should be used in any mine or part of a mine unless it was the property of, "or" provided by the owner of the mine, and the insertion of "and" in its place. The hon. member regarded the word "or" as a clerical error, and that if used it would not be fair to the workmen.

Mr. ABEL THOMAS supported the amendment, believing that even the owners would be in favour of it, as they would have control of the lamps.

The HOME SECRETARY said he hardly knew what the effect of inserting the word "and" instead of "or" would be, and he should like to have time to consider the point. (Hear, hear.)

Mr. S. LEWIS supported the amendment.

Mr. FENWICK said the reports of Inspectors pointed to the fact that the lamps ought to be the property of the owners.

Mr. J. WILSON (Durham) suggested the omission of the words in the clause "or provided by" the owner of the mine as a solution of the difficulty. (Cries of "Agreed.")

The HOME SECRETARY said he had no objection to such an amendment.

Mr. ABRAHAM obtained permission to withdraw his amendment in favour of Mr. Wilson's, which was then submitted and agreed to.

## Watering of Dry and Dusty Mines.

Mr. McKENNA next proposed to amend Clause 6 by the insertion of words providing that "where it appears to any inspector appointed under the principal Act that further precautions are necessary for the safety of a mine by reason of its being dry and dusty, a Secretary of State may make regulations with regard to the watering or damping of the mine or any ways or places therein." The hon. member expressed the hope that this amendment would not meet with opposition, as it would give the Home Secretary power to make regulations to provide for the safety of a mine that was in a dangerous state through being dry and dusty.

The HOME SECRETARY said he was afraid that the acceptance of the amendment would involve very large changes in the Bill. He need hardly say that he felt considerable satisfaction that such confidence was reposed in the Home Office, because before the reign of the right hon. gentleman opposite (Mr. Asquith), who had done something to inspire that confidence—(cheers)—he did not think there would be found many hon. gentlemen ready to propose to confer on the Home Secretary such a strong power as was contained in the amendment of the hon. and learned gentleman. The sixth clause of the Bill dealt with the subject of explosives, upon which opinion was much more ripe and matured than it was with reference to the question of dealing with fiery and dusty mines. Therefore, it appeared to him that they had not the same case for taking out of the special rules fiery and dusty mines, and giving exceptional powers to the Secretary of State to deal with them, as there was with reference to explosives. It was for that reason, after the most careful consideration, that he decided to limit this clause to explosives which were dangerous or likely to become so. If he objected to the amendment now it was from no hostility to its principle, and he hoped that the House, when it found from experience that the Home Office was able to deal satisfactorily with the difficult matter of explosives, might be disposed at some future time to entrust still larger powers to the Home Secretary. He earnestly hoped the hon. member would not press the amendment which he was certain would cause dissension, and render it much more difficult to pass the Bill. He admitted that it was not a complete or perfect measure, but he hoped it would do some good.

Sir W. HARCOURT said: I am sure that everybody and every interest concerned will recognise with satisfaction and gratitude the spirit in which the right hon. gentleman has approached the amendment. I regret very much that these questions upon which the lives of thousands of men depend should be made to stand on so unsatisfactory a footing as that of arbitration. (Hear, hear.) Anyone with any experience whatever of the profession of the law must look with horror and dismay on an arbitration. (Hear, hear.) In Clause 1 of the Bill there are five heads, all of them of the most serious character, affecting the lives of men, and what is prescribed is that special rules must be made by the Home Office on the advice of its inspectors. But these rules are to be delayed and referred to an arbitrator. Why? Is not the Home Secretary, with his competent advisers, the best arbitrator that could be got in the matter? (Hear, hear.) I was Home Secretary in the remote past, and used to see the inspectors of mines. I believe that the Home Secretary is able to secure the best information, and that no other officer can be so good an arbitrator as the Home Secretary, seeing the materials he has at his disposal and the advice he can obtain. I am quite sure that the right hon. gentleman opposite concurs in that opinion, and I think that he was only surprised to find in the Grand Committee how universal the opinion was in favour of his having larger powers than are given him under the Bill. (Hear, hear.) The jealousy of the central department was in this case entirely absent. (Hear, hear.) No arbitrator you can pick up can be half as experienced as the Home Secretary, and his advisers who are constantly conversant with these questions. If it had not been for the circumstances of the agreement under which this Bill was brought forward I should certainly have taken issue in the Grand Committee upon the whole question of arbitration. I should like, as I said then, to get rid of arbitration altogether, and to leave the regulations to be made out by the man whom I believe to be the most competent authority—namely, the Home Secretary. It is perfectly true that this system

of arbitration has been introduced not only into this Bill, but into former Bills which have been proposed upon this subject, but the right hon. gentleman took the bold and wise step in Clause 6 of taking power to the Home Secretary, without arbitration, to deal with the question of explosions. There is no doubt now, after the enquiry that had been made, that of the most fertile and dangerous cause of explosions in many mines is the coal dust, and upon that subject the Commission presided over by the Colonial Secretary expressed the following opinion:—"While recommending that every effort should be made to prevent undue accumulations of dust, it appears to your Majesty's Commissioners that the only effectual way of dealing with this source of danger would be a satisfactory system of watering and thoroughly wetting it. This precaution is already largely adopted in Durham, South Wales, Staffordshire, Yorkshire, and Derbyshire. In other districts little damping appears to be done." All that is asked here is that in Clause 6 there should be introduced the same power with reference to damping the coal dust that is given in respect of explosions. It is a remarkable thing that in the report of the Commissioners the two things are placed on precisely the same footing. The Commissioners state at the conclusion of their report:—"We have carefully considered the evidence on this question from all sides, and while we are of opinion that the only sufficient precautions hitherto suggested against the dangers of coal dust in fiery mines is a complete and satisfactory system of watering, we also feel that the same reasons which have prevented us from recommending an universal and stereotyped rule in regard to the use of gunpowder apply with equal or even greater force to the provision of an expensive and probably complicated system of watering." Clause 6 only takes explosives; we say, why not take damping as well? It is really the logical conclusion of the report of the Commission, and we should put the two upon the same footing in reference to the making of regulations by the Home Secretary without arbitration. It is, no doubt, giving an additional power to the Home Secretary, but the feeling on the Grand Committee was almost unanimous in favour of a proposal of this kind, and I believe it was the knowledge of this feeling which has encouraged my hon. friend to bring forward this amendment. I understand the Home Secretary does not demur to it, but he is unwilling to assume the responsibility of the shorter and more efficient way of dealing with this matter than can be obtained by arbitration. The Home Office is willing to take this duty, but the right hon. gentleman doubts whether or not Parliament is willing to trust the Home Office so far. Personally, I believe that Parliament is perfectly willing to trust the Home Secretary—(cheers)—and from my knowledge and experience of the Home Office, I am certain that it will be a very capable body for dealing with the question. It is perfectly impartial. It has the best advice, and all we have got to do is to confer upon the right hon. gentleman the power which would be useful to him, and which would be very fortunate for the workmen. These are the views which I entertain, and which I advanced in Grand Committee. The Home Secretary says that this is to a great extent an agreed Bill, but if this is an agreed Bill, and we are in agreement with regard to any change, no difficulty should arise. I would not propose anything which would for a moment imperil the passing of this Bill. I stated that in the Grand Committee, and do so now. I would not support anything which would endanger it; but if the owners of the coal mines are willing to entrust the Home Secretary with these additional powers—well, then, it will simply become a matter of agreement. The proposal is made for the purpose of inviting agreement on the part of colliery owners and others, and if they should express their willingness to entertain and receive this amendment, I can assure them it is one that will be hailed with immense satisfaction in all the districts where coal is worked. The Home Secretary is willing to undertake the responsibility if the parties concerned are willing to give it, and if the House of Commons would, as I am sure they would, be very glad to confer it. (Cheers.)

Mr. AHERLEY-JONES admitted that the amendment was of an attractive character, but he pointed out that it would impose upon the inspectors the duty of declaring that a mine was dangerous. He contended that the inspectors could not exercise sufficiently adequate supervision to enable them to discharge such a duty satisfactorily. He had discussed this matter with men and with masters, and they largely shared the fear that they were lessening the sense of responsibility on the part of owners by amendments of this description. (Hear, hear.) Every mineowner in his own interest was prepared to take the most elaborate precautions against explosions, and he did not think the amendment was advisable.

Mr. BAINBRIDGE supported the view taken by the Home Secretary in regard to this question, and wished to point out that the mine owners were fully alive to the danger of explosions in their mines, and were, therefore, always anxious to guard against them.

The amendment was by leave withdrawn.

The HOME SECRETARY asked the House to read the Bill a third time.

The Bill was then read a third time amidst cheers.

SOME MURCHISON STATISTICS.—In an interesting report on the Murchison field, the Inspector of Mines (Mr. Frank Reed) gives the following figures in connection with the mining industry:—The total gold yield for the year 1895 from the Murchison and Yalgoo gold fields was 65,477 ounces, out of which amount 15,434 ounces were classified as alluvial. The number of tons of quartz crushed was 40,607 tons on the Murchison, yielding on an average of 1 ounce 3½ dwts. per ton, and 2400 tons from the Yalgoo field, yielding an average of 18½ dwts. per ton. On the Murchison there were 498 leases being worked last December, 115 on the Yalgoo field, and 103 on the East Murchison field, making a total of 721 leases. The area of leases working on December 1 was—Murchison, 4715a; Yalgoo, 1167a; East Murchison, 1000a. The number of quartz miners was—Murchison, 2064; Yalgoo, 390; East Murchison, 100 (approximately); total, 2554. The number of prospectors (approximately) was—Murchison, 300; Yalgoo, 360; East Murchison, 200; total, 860 (approximately). Number of batteries—Murchison, 25; Yalgoo, 3; total, 27. Number of stampers—Murchison, 280; Yalgoo, 20; total 300. Other mills for reduction—Murchison, 4. Number of steam engines—Murchison, 73; Yalgoo, 4; total 76. Boilers—Murchison, 67; Yalgoo, 3; total, 70. Cyanide plants—Murchison 2. Estimated value of mining machinery—Murchison, £123,411; Yalgoo, £4700; total, £128,117. The following are some of the principal crushings for the year 1895—Emerald Reward, 1016 tons for 1045 ounces; New Chance, 2922 tons for 11,128 ounces; Morning Star and Easter, 5785 tons for 5785 ounces; Mount Magnet, 86 tons for 122 ounces; Golconda, 1230 tons for 2091 ounces; Mainland Consolidated, specimens, 500 ounces; Victory United, 640 tons for 1374 ounces; Fortune of War, 657 tons for 788 ounces; Kinsella, 545 tons for 407 ounces; Trenton, 4370 tons for 2749 ounces; Day Dawn West, 2061 tons for 1490 ounces; Day Dawn North, 230 tons for 60 ounces; Day Dawn, 7412 tons for 4608 ounces; Light of Asia, 20 tons for 40 ounces; Lady Mary Amalgamated, 70 tons for 51 ounces; Cae, 830 tons for 1019 ounces; Red, White, and Blue, 100 tons for 97 ounces; Nannine, 687 tons for 914 ounces; Queen of the Lake, 777 tons for 387 ounces; Star of the East, 5020 tons for 2329 ounces; Royalist Consolidated, 62 tons for 228 ounces.—Mount Magnet Mine.



## CORRESPONDENCE.

We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

## COAL DUST.—THE QUESTION OF PRIORITY.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—In a lecture recently given on "Coal Dust and Explosions," by Mr. H. Richardson Hewitt, of Derby, H.M. Inspector of Mines, the following remarkable statements occur:—

"It was but a few years ago that the Messrs. Atkinson first drew attention to their idea that coal dust was a dangerous element in mines where blasting operations were carried on."

"After Messrs. Atkinson first drew attention to the subject Professor Galloway took it up, and made some rough experiments by placing gunpowder cartridges in heaps of coal dust and firing them in the dark."

Although these statements were obviously uttered in ignorance of the nature of my experiments, they raise a distinct and palpable issue as to priority.

The facts are as follows:—

My first experiments with coal dust were made on July 3, 1875. I then discovered that a mixture of air and fire-damp which is not inflammable at ordinary pressure and temperature, on account of the smallness of the proportion of fire-damp present in it, becomes inflammable when coal dust is added to it, and can be ignited by means of a comparatively small flame.

On December 22, 1876, I gave evidence in the capacity of Assistant Inspector of Mines, at the coroner's inquest on Llan Colliery Explosion (South Wales District), when I attributed that explosion principally to the influence of coal dust. My evidence was discountenanced by the Chief Inspector of Mines for the district, and was not embodied in the reports of the Inspector of Mines, but it was reported *verbatim* in the two local newspapers (*Western Mail* and *South Wales Daily News*) of December 23, 1876.

On March 2, 1876, I read my first paper, entitled "On the Influence of Coal Dust in Colliery Explosions," before the Royal Society. In that paper I announced the coal dust theory.

In 1878 I published a large number of articles in *Iron*, under the title of "Coal Dust Explosions." In these articles, amongst many other things, I quoted and commented upon what Faraday and Lyell had written about coal dust upwards of 20 years previously, and I gave complete translations of the papers that had been published in France, having a bearing upon the subject.

Besides contributing a number of other articles and papers on the same subject to various societies and periodicals I read altogether five papers:—"On the Influence of Coal Dust in Colliery Explosions" before the Royal Society—viz.: March 2, 1876, already referred to; February 27, 1879; May 30, 1881; December 29, 1881; May 8, 1884, and one on "A Coal Dust Explosion," February 17, 1887.

During the 10 years ending in 1885, I was engaged from time to time in carrying out experiments with coal dust; first, with apparatus provided by the Glamorgan Coal Company (Limited), and erected at their Llwynypia Colliery; secondly, with apparatus purchased by means of Government grants obtained through the Royal Society; and, thirdly, with apparatus belonging to the Royal Commission on accidents on mines.

Before the accounts of my earlier investigations, and the conclusions founded upon them had appeared, the Inspectors of Mines and other mining experts were practically unanimous in attributing the cause of every great colliery explosion to the sudden outburst of a large volume of fire-damp which was supposed to have flooded the workings, become mixed with the air, and, on being ignited in one way or another, produced the various phenomena subsequently observed. This explanation was accepted everywhere as the only one possible; it was recorded in the official reports of the Inspector of Mines, and they, as well as the experts of that generation, were irrevocably committed to it.

There was not, figuratively speaking, a ripple of dissent from this mode of explanation upon the placid surface of mining opinion at the moment the coal dust theory was launched upon it. At first the new theory was ignored; then it was scouted; then it was subjected to scathing criticism; then it was taken up in a tentative manner by some of the younger and bolder men; and, lastly, when it was found to be making serious headway, one of the more adventurous spirits suddenly discovered that it was not new after all, for had not Faraday and Lyell and certain French engineers been its real authors?

Following my lead, first a joint paper by Messrs. Hall and Clark was contributed to the North of England Institute, in May, 1876, then another by Messrs. Marreco and Morrison, in 1878, all of whom, with the exception of Mr. Clark, had previously corresponded with me on the subject of explosions; finally, in the year 1879, after the publication of my articles on "Coal Dust Explosions" in *Iron*, and during the next few years afterwards, a very great army of investigators, headed by Government Commissions in England, France, Prussia, Austria, and Saxony, and including the Messrs. Atkinson, entered the field.

Some of these investigators contented themselves with criticism pure and simple; others, of whom many had neither aptitude nor training for the work, made experiments with small and imperfect apparatus, and, as a consequence, obtained only negative results. Still others were carried away by the side issues, and only a few, such as the Prussian and Austrian Commissions, and Messrs. Hall and Atkinson, H.M. Inspectors of Mines, did really good and substantial work of an enduring kind.

The facts and conclusions recorded in my earlier papers were freely drawn upon. By some they were generously acknowledged, by others they were first denounced and then assimilated, by others they were adopted without acknowledgment, while some of my experiments, and notably my investigations into the nature of the fire-damp cap—(Proc. Roy. Soc., March 2, 1876), were repeated with some variations and described as if they were original.

A flood of literature was now poured upon the mining world from every side, embodying opinions of the most conflicting and mystifying character, such as: a mixture of coal dust and air may take fire, but it cannot explode; coal dust can only carry flame from one accumulation of fire-damp to another; a coal dust flame cannot extend throughout the workings of a mine in the entire absence of fire-damp; a small proportion of fire-damp must always be present in the air when an explosion takes place; some kinds of coal dust are more inflammable than others; and so on, so that amid the din and hurly-burly of the strife the main question of how to put an end to great explosions was almost lost sight of.

But the scene of each successive explosion when viewed under the new light served gradually to dispel the Will o' the Wisp which the majority of the investigators had been following per-

tinuously for years, and thus it has come to pass that the new generation of Inspectors of Mines, and those who have been associated with them in investigating the phenomena of explosions, have become convinced, I believe, almost to a man of the soundness of the coal dust theory, and that the struggle of contending factions, which was at its height 10 or 12 years ago, has gradually subsided, leaving us face to face with a work which still remains to be done—namely, to render the occurrence of a great colliery explosion impossible in the future.

Into the consideration of that problem I do not propose to enter on the present occasion, as I have lately done so in considerable detail in the pages of the *Daily Chronicle*, of June 24, of the present year.

Cardiff, July 17.

W. GALLOWAY.

## COMPLETE AND CHEAP GOLD EXTRACTION PROCESS.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—The remarks you have made in your paper as to the necessity of legislating for the water difficulty in West Australia are very much to the point, but the remedy appears to me to lie in the adoption of more appropriate methods of crushing and extraction rather than in the supply of water in such quantities as is considered at present necessary.

I believe I am right when I say that a large proportion of the gold in the ore found in West Australia is in the form of float gold, in which case crushing with stamps is inappropriate, the water carrying away a large percentage of gold, which is thus lost, leading to much disappointment when the crushings do not support the assay and reports. Dry crushing with rolls would, therefore, appear to be far more suitable, eliminating the water difficulty altogether, as, excepting for the very large supply required for stamps, there would be an ample supply of water obtainable on the ground.

I think myself, as to extraction, that when Admiral Selwyn's process becomes known and appreciated, it will be the one in general use as being effective and economical, and, again, requiring less water than any other process, securing all the float gold, and equally suitable for use with all classes of ore, refractory or otherwise. It surely can hardly pay to use cyanide for extraction with ore containing a large percentage of iron or refractory ores, excepting when those ores are abnormally rich, and even then the extra profit derived from the use of a more suitable treatment could not wisely be ignored.

July 28.

MICH. TWEDDIE, Major-General.

## ATTENDANCE GRANTS IN SCIENCE AND ART SCHOOLS.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—Referring to my circular letter of June 27 (No. 308) on the subject of attendance grants in Science and Art Schools, I am directed to inform you that the Lords of the Committee of Council on Education, having received representations from the committees of several schools as to the difficulties of introducing the new system at such short notice after arrangements for the coming session have been made, have decided to allow the committee of any school the option of continuing to work and receive grants under the rules of the Directory for 1895-6.

This option must be notified before October 1.

The syllabuses of the courses of instruction given in the Directory for 1896-7 must, however, be followed in all cases.—I have the honour to be, Sir, your obedient servant,

J. P. D. DONNELLY.

Science and Art Department, South Kensington, July 24.

## THE CAMBORNE MINING AND SCIENCE SCHOOL.

The school, situated in the centre of the mining district of Cornwall, and thus affording exceptional facilities for the acquisition of a practical knowledge of mining, is an outcome of Sir Charles Lemon's attempt to establish a Cornish Mining School. On the collapse of the attempts to work such a school at Truro, a body of gentlemen, among whom Dr. Barham and Mr. Robert Hunt, F.R.S., were conspicuous, founded in 1889 the Miners' Association with the object of establishing classes for technical instruction within easy reach of the homes of the miners; and in pursuance of this object they employed a series of lecturers, some of whom have risen to positions of distinction, such as Mr. R. Pearce, of Denver, ex-President of the American Institute of Mining Engineers; Dr. O. Le Neve Foster, Lecturer on Mining to the Royal School of Mines and H.M. Inspector of Mines; Mr. J. H. Collins, ex-President of the Institute of Mining and Metallurgy; and Mr. B. Kitchin. These were assisted in the work by local men, for the most part themselves pupils in the classes who greatly extended the area and usefulness of the work. Among those who so assisted may be mentioned Mr. F. Oats, director of De Beers Consolidated Diamond Mining Company; Mr. W. Rich, manager of the Rio Tinto Mines; Mr. J. Gill, Organising Secretary in Technical Instruction to the Cornwall County Council. It was the success of the classes conducted by Mr. T. H. Leitch, at Camborne, which prompted the late Mr. G. L. Bassett in 1877, to build a chemical laboratory at Camborne for the better instruction of the classes. This may be seen as the start of the Camborne Mining School, for the expansion of the work since then has been continuous, and of late rapid. In 1882 a school, thought at that time to be sufficient for all purposes, was built adjoining the laboratory. In 1890 an additional building—the Bassett Memorial—was added, and this included a museum since enriched by a very valuable collection of mineral specimens presented by Mr. J. O. Williams. Again in 1895 another building was added, including a well fitted, convenient, and larger laboratory, with furnace room, vanishing room, and lecture room. Quite recently a portion of the South Condurow Mine has been acquired, so that students may obtain a knowledge of practical mining under the authority of the school, and with the supervision of competent instructors. This enables the instruction in mine surveying to be made of a more practical character. The number of students in the school during the past session was 346. Although the classes are primarily intended for Cornish students, and are in part supported by funds upon which only Cornish students have a claim, yet from the first students from outside the county, attracted by the reputation of the district, have taken advantage of the facilities afforded for a mining education. Of late years the number of such students has considerably increased, and the committee of the school has made further provision to meet their requirements. The school course for the mining certificate extends over a period of three years; and in each year students are supposed to work on the mine two days a week. For the first two years this work is done at South Condurow, but in the third year arrangements are made for placing sufficiently advanced students on other mines where they may extend their acquaintance with general mining and ore dressing machinery. Students working at other than the school mine must supply the secretary with a report of their work every week. Work on the mine may be continued during the summer vacation, and for the convenience of students taking advantage of this, short courses of instruction in various subjects are given during that period. The library, which is the property of the Mining Association and Institute of Cornwall, is furnished with standard works on the subjects taught in the school, and is regularly supplied with technical and scientific journals. The school certificate is awarded in three departments—mining, mechanics, chemistry. It is of two classes. The qualifications specified below, under their proper headings, are those required for a second class. To obtain the first class, more advanced passes in the same subjects count, and such other successes as the applicant has obtained will be considered. But to qualify for a certificate in any department, passes in at least four of the following subjects must be obtained:—Mathematics, geometry, hydraulics, dynamics, physics, and chemistry. 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## NOTES ON THE EXPLOSION OF COAL DUST.\*

By W. J. ORSMAN, F.I.C., F.C.S.

It is curious to note that nearly all the recent explosions in British collieries have been traced to the ignition of coal-dust. As it is only lately that coal-dust has been recognised as a serious danger, it may be that in the olden days fire-damp was often wrongfully accused. Anyhow, the circumstances which guide the working of a mine at the present time are much more favourable to the explosion of coal-dust than of fire-damp. With the modern methods of ventilation, any gas occluded from the coal ought to be at once swept away, or so diluted as to become a non-explosive mixture, whereas this increased volume of air, by sweeping up the dust, and by presenting a large volume of oxygen, is distinctly in favour of helping to initiate and propagate a dust explosion. It is now an acknowledged fact that a mixture of coal-dust and air can be ignited and cause explosion without the help of marsh gas, and experiments on a large scale by Mr. Henry Hall, H.M. Inspector of Mines, and Mr. W. Galloway, have demonstrated that such explosions can be caused by means of a blown-out shot.

It is well known that explosions have occurred in flour mills, and other places, in which a dusty atmosphere has been present, but these are of very rare occurrence, and it is a matter of extreme difficulty to cause an ignition of dust by means of a naked flame. If such ignitions were easy, we should have constant explosions in the dusty atmospheres in coal mines where naked lights are used. We therefore have to look for some further explanation for the disastrous explosions which sometimes occur in mines, in which, as far as could be proved, no inflammable gas was found, either before or after the explosion. The easiest way to produce an explosion of dust experimentally is by means of a blown out shot of blasting powder—that is to say, by firing a charge of blasting powder in a cannon and allowing the heated products of combustion to come in contact with a dusty atmosphere. Under these circumstances, nearly every variety of coal-dust will catch fire and burn easily.

Gunpowder has been, and is still, used largely for blasting purposes, a special variety, called blasting or mining powder, being employed. Blasting powder contains less saltpetre and more charcoal than ordinary gunpowder, and is, therefore, cheaper to use. With ordinary blasting powder, on firing, a large volume of heated gas is formed (about 3000 times the volume of the powder used), also no less than 50 per cent. of the total products of combustion, consisting of finely-divided particles of solid matter raised to a state of incandescence are projected from the borehole. These heated particles cause rapid ignition of a mixture of air and coal-dust. Professor H. B. Dixon has shown that the tendency of hydrocarbons, and probably carbon, when burnt in air, is to first form carbon monoxide, and that this gas, if excess of oxygen be present, further burns to form carbon dioxide. Professor Dixon has also shown that carbon monoxide forms explosive mixtures with air and oxygen, the velocity of the explosive wave formed reaching a maximum in the presence of about 5 per cent. of water vapour. The heat of combustion of 1 gramme of carbon burning to form carbon-dioxide is 8080 units, and in burning to form the monoxide is only 2473 units; the difference, therefore, of 5607 will show the number of units of heat evolved in the burning of the monoxide to the dioxide.

Professor Vivian Lewes has demonstrated the fact that coal dust will readily burn in mixtures of air and carbon monoxide, and has shown that a small proportion of carbon monoxide present in a dusty atmosphere will constitute a most explosive mixture. There is every probability, therefore, that the initial combustion of the dust through contact with the heated products of the blown-out blasting powder shot produces a certain quantity of carbon monoxide gas, and this gas mixing with the fresh air and fresh dust in the presence of flame will cause the explosion to rapidly extend in area. With blasting powders containing an excess of charcoal we find that large columns of carbon monoxide and sulphuretted hydrogen are formed, and it can be easily demonstrated that coal-dust burns readily in mixtures of air with the gases produced in this way.

In order to test the action of the gases given off on the combustion or detonation of explosives containing an excess of carbonaceous matter, such as blasting powder, carbonite, &c., small cartridges have been fired in a specially constructed steel bomb, and the gas produced, mixed with air in a large cylinder. On sprinkling coal-dust in and applying a light the dust ignited easily and burnt away fiercely. It will be seen, therefore, that the presence of carbon monoxide in the air of a mine in small quantities is not only dangerous to health (1 per cent. being fatal), but also constitutes, when in the presence of coal dust, a most explosive mixture. On examining the other explosives now coming into use, it is found that those which do not produce carbon monoxide or other inflammable gases, such as those of the Sprengel class, containing nitrate of ammonium, are very safe in dusty mines, whilst others which produce inflammable gases are as dangerous as gunpowder.

From theoretical consideration and practical experiments, it is evident that safety lamps are as necessary in a pit perfectly free from gas, where certain explosives are used, as in gassy mines, for suppose a shot of highly carbonaceous powder or other explosive, containing an excess of carbon, be fired in a bore hole properly stemmed, and then a naked light be brought near the face where the coal has fallen, it is quite possible to get an explosion from the admixture of air with the gaseous products of combustion, and the explosion in a dusty atmosphere might extend with awful rapidity. Apart from the dangers of explosion, the presence of the poisonous carbon monoxide gas produced from certain explosives, as shown in a previous paper read before the Institute some time ago, is highly deleterious to the health of the miner, and it is a matter of great interest that Dr. Haldane has determined to work on this subject.

In order to get some idea of the condition of the air inside the pit whilst an explosion was in progress the author arranged, at the time of Mr. Hall's experiments in 1892,† a method of taking samples of the air.

Two brass tubes filled with water were fastened to the rope that was used to lower the cannon, one 60 feet from the bottom, and the other 120 feet from the bottom. These tubes were so arranged and constructed that the explosion, as it passed the tubes, unsealed the outlet pipe, and the escaping water allowed the ingress of a sample of air, which was trapped by a special arrangement, and kept in the tube until the rope could be wound up. By this method it was intended that the sample of gas taken should represent the state of the air whilst the flame was passing, or directly afterwards. The lower tube, as the analysis will show, did partly collect the gas in the above condition. The tube at the top, however, commenced to act prematurely, and was probably started by the sound wave which preceded the explosion. This tube simply contained

ordinary air. The following is an analysis of the gases found in the lower tube:—

	Percent.
Oxygen .. .. .	3.9
Nitrogen .. .. .	75.9
Carbon dioxide .. .. .	12.1
Carbon monoxide .. .. .	8

The presence of carbon monoxide in the after damp from an explosion would, by leaking into the side workings, in the absence of proper ventilation, account for miners being found dead, although the lamps continued to burn brightly, the percentage of carbon monoxide necessary to cause death having little or no effect on the flame of the lamps.

Many theories are held regarding the propagation of an explosion in a dusty mine, the principal one being that the coal-dust by the action of heat becomes distilled and yields the inflammable gases necessary to continue explosion. The production of these gases may undoubtedly have some effect, but the writer is firmly of opinion that the propagation is principally due to the continuous production of carbon monoxide, which causes rapid combustion of dust and air as long as they are present. It is found that lamp-black and other finely-powdered forms of carbon burn in the presence of carbon monoxide as easily as coal-dust. Further, all coal dusts are sensitive to a blown-out blasting powder shot, provided they are in a fine state of division, and free from any large admixture of dirt.

The reasons why certain dusts have been stated to be safe, because they did not catch fire when experimentally tried, is due to the fact that they were contaminated with dirt, owing to the traffic through the pit, and so yielded a large percentage of ash.

## REPORTS FROM THE MINES.

## BRITISH MINES.

**LEADHILLS.**—W. H. Paul, July 28: "We had a good fall of rain here on Saturday, which increased the brooks, and the water has since risen several feet in the reservoir, giving us, I calculate, a month's supply at least. The dam has been completed at the 102 feet, pumping wheels are going full speed, and water is being gradually drained from the lower workings. The weather is fine now and we are busy about our hay crop, which is a fair one. The following bargains have been let:—Brown's vein. A stope above the 115 fathom level north of Jeffrey's shaft, to two men, at 4s. 6d. per fathom, on vein north 20 wts. of lead ore per fathom. A drift south of No. 1 stope above the 115 fathom level north of Jeffrey's shaft to two men at 3s. per fathom; vein 3 feet wide, well mixed with spar, and spotted with lead ore. A rise over the 115 fathom level north of Jeffrey's shaft to four men at 3s. per fathom, vein yielding sparing work for dressing floor. A croscut eastward at the 100 fathom level south of Wilson's shaft towards Rink vein is let to five men at 11s. per fathom. Ground of a congeal character. The 85 fathom level is now extended 212 fathoms 2 feet 5 inches south of Wilson's shaft, and let to four men at 3s. per fathom. Vein here small and poor, but showing a little more spar. A croscut eastwards at the 70 fathom level south of Wilson's shaft towards Rink vein is let to six men at 11s. per fathom. A rise over the 70 fathom level south of Wilson's shaft to four men at 3s. per fathom now yields good stones of ore. A winze below the 50 fathom level south of Wilson's shaft set to four men at 3s. per fathom. A rise over the 50 fathom level south of Wilson's shaft set to four men at 3s. per fathom will yield 30 wts. of ore per fathom. Gripp's adit level is set to drive south of Wilson's shaft by four men at 3s. per fathom. Vein here has improved, now 3½ feet wide, composed of a kindly stone, spar, and lead ore, worth 20 wts. per fathom, and water issuing from the forebore; a very promising end.—Rink vein. The 100 fathom level south of croscut is extended 27 fathoms 2 feet 8 inches. Vein still poor, and we are driving obliquely eastward, to prove the hanging portion of the vein. The 100 fathom level north of croscut is driven 25 fathoms 1 foot 8 inches on eastern part of vein, which at present is rather soft and unproductive. These points are set to seven men at 7s. and 6s. per fathom respectively. A croscut is set to four men at 7s. per fathom to drive westwards at Gripp's and south of Watson's shaft from Highwork vein towards Rink vein, and is extended 14 fathoms 5 feet. Ground of a congeal character for producing lead ore, and we are meeting with small strings of spar, &c. End also map. Gripp's adit level south of Wilson's shaft has been extended 4 fathoms 3 feet 8 inches north-west on adit level, and is set to four men at 50s. per fathom. Vein here is 3 feet wide, well mixed with spar, producing good stones of lead ore, and there are indications for improvement.

**WEARDALE LEAD.**—Report on Wardale Company's mines for the week ending July 25: Groverake, sinking sump from 60 fathom level, we still have a strong vein composed of spar and rider, but very poor in ore.—Bollaburn, Stopes below the level north 20 wts. and 18 wts. per fathom. Stopes in south flat north 20, 26, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100, 102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 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length 334 feet. There is no change to report here. **LYDENBURG (TRANSVAAL) GOLD EXPLORATION.**—The manager, J. A. Oodburn, writes under date July 1, as follows: Dolomite seam. Both top and bottom seams vary in thickness frequently. I was in hope that both might sometimes come together; so far, however, no signs of this are apparent. Indistinctly real. The work is progressing vigorously, but very little change is noted. I have had sink to the extreme south of where the reef is exposed, to a depth of about 9 feet on the leader about 8 inches rock, which shows visible gold. There is no doubt that gold exists in large

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quantities were found, but as in other places the reef is very poor; it will mean careful sampling and frequent assaying before an average result can be obtained. Owing to the want of materials and the difficulty of transport, the old workings on Wakkeradai, as well as outcrops Nos. 1 and 2 on the upper dolomite seam, and Nos. 3 and 4 of the lower dolomite seam, have not been further developed.

**NAMAGUA COPPER.**—Abstract of Superintendent's report for May:—Two-ton level, 140 fathoms level. The lode is small and of no value. 115 fathom level. The lode, though small and composed of quartz, magnetite, and occasional stones of ore, is well defined, but of no value. 115 fathom level No. 36 winze. This winze will probably be communicated to the 125 fathom level in a short time, when the large body of ore in the upper part of this winze will be able to be stopped. The ground in the bottom is chiefly quartz. Worth 3 tons of ore per fathom. Stopped. 125 fathom level, back of the ore taken from this stop is of high percentage, and worth 5 tons of ore per fathom. 115 fathom level, bottom of. There is a large lode here of fair quality ore. Worth 7 tons of ore per fathom. 115 fathom level, side of. The lode is large at this point, and its full breadth has not been reached. Worth 8 tons of ore per fathom. 105 fathom level west, back of. A falling off has taken place in this stop, and it is now only worth 6 tons of ore per fathom. 125 fathom level east, back of. This stop is yielding well, and is extending towards the north and east. Worth 10 tons of ore per fathom. No. 2 shaft, stop No. 1 and 2. These stops are yielding about the usual quantities of ore—viz., 8 tons per fathom, and show the lode to be at least 3 fathoms wide at this place. No. 4 shaft, intermediate level. There is but little change in the present bottom, however, about 13 fathoms. 12 fathom level. Only a small part of the lode is seen in this level. Worth 4 tons of ore per fathom. Intermediate level, crosscut south. This point is producing good dressing stuff. Worth 8 tons of ore per fathom. Stopped show no change, and are worth 8 tons of ore per fathom. No. 5 shaft, west driving. This point has been in abeyance in consequence of several men having left, their term having expired. Wheel Julia, Central shaft. This shaft is passing through a bed of extremely hard felspathic rock, such as is usually found near mineral veins in this district. The present bottom, however, shows a little change with spots of ore. Shipping. The Magnet and the Wankel left Port Nolloth for Swarosa on June 20 and July 11 with about 775 tons and 1050 tons of ore respectively. Output for June. 630 tons of ore of 27 per cent.

**TIGER (Massi Kasse).**—Report of the Superintendent engineer, Mr. Nines, for the month of May: No. 1 drive has advanced during the month 27 feet, total length 471. The ground is becoming less decomposed, consequently it allows us to place our sets of timber farther apart and a greater speed in driving may be expected.

#### AMERICAN.

**CALIFORNIA MILLING AND MINING.**—The following is the manager's report on the mill and mine for the month of June:—Mill. Custom ore milled 1720 tons, California ore milled. Average number of stamps dropping, 55. The prospects for ore supply at the mill continue satisfactory. The water power is, however, somewhat short, owing to the exceptional drought this year. Mine. Work in the California Mine continues suspended. Income for the month \$1318.75, expenditure \$2773.19, profit \$955.56.

**DE LAMAR.**—My last advice were dated July 10, and numbered 636: I now beg to hand you my report for the month ending June 30:—Mining. Ore breaking department. Wilson vein, above third level. Average width of vein 3 feet 9 inches, assaying \$24.70 in gold and \$1 in silver, equal to \$25.70 per ton. Hamilton vein, above fifth level. Average width of vein 5 feet, assaying \$16 in gold and \$0.60 in silver, equal to \$16.60 per ton. Hamilton vein, above eighth level. Average width of vein 2 feet 9 inches, assaying \$5 in gold and \$0.50 in silver, equal to \$24.50 per ton. 77 feet vein, above fourth level. Average width of vein 3 feet, assaying \$12.20 in gold and \$1.10 in silver, equal to \$13.30 per ton. 77 feet vein, above fifth level. Average width of vein 3 feet 9 inches, assaying \$13 in gold and \$1 in silver, equal to \$14 per ton. 77 feet vein, above sixth level. Average width of vein 3 feet 3 inches, assaying \$18 in gold and \$1 in silver, equal to \$19 per ton. 77 feet vein, above seventh level. Average width of vein 3 feet, assaying \$18 in gold and \$1 in silver, equal to \$19 per ton. 77 feet vein, above eighth level. Average width of vein 4 feet, assaying \$21 per ton. 77 feet vein, above ninth level. Average width of vein 4 feet 6 inches, assaying \$22.75 in gold and \$2.25 in silver, equal to \$25 per ton. 77 feet vein, above tenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above eleventh level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twelfth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above fourteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above fifteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above sixteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above seventeenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above eighteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above nineteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twentieth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-first level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-second level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-third level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-fourth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-fifth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-sixth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-seventh level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-eighth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above twenty-ninth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirtieth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-first level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-second level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-third level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-fourth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-fifth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-sixth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-seventh level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-eighth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above thirty-ninth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above fortieth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above forty-first level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above forty-second level. 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Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and sixth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and seventh level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and eighth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and ninth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and tenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and eleventh level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and twelfth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and thirteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and fourteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and fifteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and sixteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and seventeenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and eighteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and nineteenth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and twentieth level. Average width of vein 4 feet 6 inches, assaying \$24 per ton. 77 feet vein, above one hundred and twenty-first level. 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Table of Work performed for the months of May and June, 1896.

Number of tons crushed (wet).....	3,037.98
(dry).....	2,779.16
Assay value of the pulp:—	
Gold.....	\$13.00
Silver.....	6.98
.....	\$13.98
Assay value of the tailings:—	
Gold.....	\$4.04
Silver.....	1.62
.....	\$5.66
Percentage saved, total.....	71.64
Number of Dore bars produced.....	13
Number of ounces pure gold produced.....	1,158.7995
Number of ounces fine silver produced.....	23,367.16
Value of gold produced.....	\$23,175.89
“ “ silver.....	15,138.83
Orre sales.....	4,775.00
Miscellaneous revenue.....	414.93
.....	\$13,554.47
Deduct all expenses for the two months.....	37,389.00

Estimated profit for the two months (or at \$14.90 to \$ sterling, £1255)..... \$5,165.47

Everything about the property is in good order and running with its usual regularity.—John W. Plummer, manager, De Lamar, Idaho, U.S.A., July 11.

**INVICTA (B.C.).**—The manager, Mr. J. W. R. Young, reports under date June 28: Clean up. I have the pleasure to enclose statement of gold obtained in the preliminary work (showing a yield of 28 ounces 4 dwts. of gold). I may mention that none of the gold run from ground sluicing has been obtained, as it was impossible to get out all the rocks lying on the bench of gravel upon which the face water fell. These rocks and boulders have proved an efficient ripple, and what gold is contained in them will go to the credit of the next clean up. As the value of the ground is well satisfied, taking into consideration the quantity of debris that had to be handled.—Construction work. In the intervals, this has been gradually progressing. The pressure boxes at Victoria and China ditches have been built and completed in a very substantial manner, both being 16 feet long, 5 feet wide, and 9 feet high. They are now filled with water pending the laying of the pipe, and so as to prevent warping. The north winze of the sluice way on China grounds has been graded and boxed built for a length of 64 feet, and about half of the line for pipe on this ground has been graded. Since the water was shut off from Victoria ditch the old pipe line has been disconnected, and nearly all of it packed over to Chinese ground, where it is to be laid. The grading of the extension of the Wing Kee sluice and building boxes on the same is now under way, also preparing of the way for the new pipe. The last of the new plant was received on the 12th instant, and 500 feet of the pipe is already rivetted.—Commencement of mining work. At the present time every effort is being made to get the plant put forth to get the new plant running by the date named in a previous letter, viz., August 1. On the China ground there might be a delay of two or three days, but unless something impossible to foresee should intervene, the board can rely upon this being fulfilled.—New plant. The plant now being installed will, with the care every plant ought to receive, outlast the life of the mine. Having now made a test which has practically demonstrated the value of the gravel, it can be calculated with a reasonable amount of surety what a given amount of work will produce. I am told that the gravel I propose using is of a better average than that now worked; but I am now dealing with what I know, and base expectation upon experience. No part of the work has been shirked or glided over, but the company will possess a property thoroughly and amply equipped in every respect, and equal to the best mines on this continent.

**TOLIMA.**—The directors have received advice by the mail of July 23 from their mines, of which the following is an abstract:—Frias estimated May returns, 120 tons, silver valued at \$2.92 per ounce, £144 2s., cost, £4 3s. 6d.; profit, \$195 13s. 4d. The underground agent reports 120 fathoms 1 foot 3 inches of ground expended, of which 98 fathoms 1 foot 10 inches were productive, leaving 22 fathoms 5 inches of unproductive ground. The acting superintendent, writing under date of June 17, states that the various exploratory works are progressing in a satisfactory manner, and that the details given in the underground agent's report afford full information on the position of the mine:—Engine shaft was sunk 14 feet by 14 men on company account, thus being 41 feet as total depth below the sole of the 150 fathom level, and the position of the lode sunk upon continues poor. 150 fathom west end footwall side was driven 127 feet by two men at \$70 per fathom, thus being 1602 feet as total west of the 150 east winze No. 1, and the lode continued to yield slight bits of mineral here and there, but not in quantities to value. 150 fathom west back stop No. 1 was stopped 48 feet by four men at \$33 per fathom, and it yielded 2½ tons of mineral per fathom. 150 fathom east end was driven 10 feet by two men at \$70 per fathom, thus being 1745 feet as total west of the 150 fathom west end footwall side. The lode is unchanged. 150 fathom west end was driven 12 feet by two men at \$60 per fathom, thus being 235 feet as total west of the engine shaft, and the lode yielded some good portions of mineral, although the present forecast shows a decline. 140 fathom east back stop No. 1 was stopped 387 feet by four men at \$25 per fathom, and yielded 1½ tons of mineral per fathom. 140 fathom east back stop No. 1a was stopped 38 feet by four men at \$30 per fathom, and it yielded 1½ tons of mineral per fathom. 130 fathom west end was driven 18 feet by two men at \$55 per fathom, thus being 712 feet as total west of the engine shaft. The lode has again shown a decline, and it will now be driven 12 feet by two men at \$60 per fathom. 130 fathom west back stop No. 1 was stopped 25 feet by two men at \$25 per fathom, and it yielded 10 cwt. of mineral per fathom. 130 fathom east back stop No. 2 was stopped 13 feet by two men at \$55 per fathom and it

yielded 15 cwt. of mineral per fathom. 130 fathom east back stop No. 3 was stopped 42 feet by four men at \$30 per fathom, and it yielded 2 tons of mineral per fathom. 130 fathom east back stop No. 3A was stopped 40 feet by four men at \$23 per fathom, and it yielded 2 tons of mineral per fathom. 120 fathom east back stop No. 1, north branch, was stopped 38½ feet by four men at \$30 per fathom, and it yielded 1 ton of mineral per fathom. 120 fathom east back stop No. 2, north branch, was stopped 20 feet by two men at \$25 per fathom, and it yielded 5 cwt. of mineral per fathom. 120 fathom west back stop No. 3 was stopped 35 feet by two men at \$25 per fathom, and it yielded 1 ton of mineral per fathom. 120 fathom west back stop No. 3A was stopped 45 feet by two men at \$22 per fathom, and it yielded 1 ton of mineral per fathom. 110 fathom east end was driven 18 feet by two men at \$80 per fathom, thus being 1074 feet as total east of the engine shaft, and the lode is yet without change to note. 110 fathom east bottom stop No. 2 was stopped 18 feet by two men at \$38 per fathom, and it yielded 5 cwt. of mineral per fathom. 110 fathom east, north branch, was driven 18½ feet by four men at \$10 per fathom, thus being 1598 feet as total east of the winze, and it yielded 10 cwt. of mineral per fathom. 110 fathom east back stop No. 1, north branch, was stopped 45 feet by four men at \$30 per fathom, and it yielded 1½ ton of mineral per fathom. 110 fathom west back stop No. 1, north branch, was stopped 66 feet by four men at \$25 per fathom, and it yielded 1 ton of mineral per fathom. 90 fathom east end was driven 155 feet by two men at \$30 per fathom, thus being 1273½ feet as total east of the engine shaft, and the lode continues strong and well defined, but yet poor. 90 fathom east bottom stop No. 1 was driven 13 feet by two men at \$20 per fathom, and it yielded 1 ton of mineral per fathom. Shallow adit was driven 13 feet by four men and a boring machine at \$11 per fathom, thus being 461 feet as total west of the crosscut, and the lode is unchanged. West end footwall side new crosscut was driven 12½ feet by two men at \$30 per fathom, and it is upon a very strong and promising lode.—Real de Frias. The skirpad is finished and the skip is working satisfactorily. 35 fathom west end was driven 23 feet by two men at \$18 per fathom, thus being 313½ feet as total west of the shaft. The lode continues strong, well defined, and generally promising. 35 fathom east end was driven 20 feet by four men and a boring machine at \$90 per fathom, thus being 214 feet as total east of the shaft, and the lode is slightly better defined but yet poor.

#### INDIAN.

**BALAGHAT MYSORE.**—Report for the fortnight ending July 4: Ogle's shaft. The 410 feet level south from the crosscut east has been driven 9 feet 6 inches, total distance 9 feet 6 inches. The quartz 4 inches in width assays 1 dwt. 15 grains of gold per ton. The 410 north has been extended 11 feet 6 inches from the crosscut east, total distance 11 feet 6 inches. Quartz 3 inches wide assays 1 dwt. 15 grains. Haines' shaft. The 410 feet level north has been driven 4 feet, total distance 200 feet. Lode 4 feet wide assays 1 dwt. 6 grains. Health. Two cases of cholera have occurred on the property within the fortnight, but the disease does not appear to be spreading, and the work is proceeding without interruption.—Thomas Richards.

**MYSORE WEST AND THE MYSORE WYNAD CONSOLIDATED.**—Tank Mine. Monthly report for June: South shaft. The new skips have arrived and are working very satisfactory. 507 level No. 1 drive north on west lode has been driven to a distance of 138 feet, progress 8 feet. The lode in the end is 2 feet 6 inches wide, and is worth 4 dwts. per ton. 507 level No. 2 drive south on east lode is in 124 feet 6 inches, progress 20 feet. The lode is 3 feet wide and is worth 6 dwts. per ton. 57 No. 3 drive north on east lode has been carried to a distance of 114 feet 6 inches, progress 13 feet. The end is all in quartz, and is worth 10 dwts. per ton. The rise in the back of this level has been risen 13 feet 6 inches, progress 13 feet 6 inches. The quartz is 3 feet wide and is worth 2 dwts. per ton. We have started stopes in the back of the No. 3 drive south from the 450 level. The quartz in this stop is 3 feet wide and is worth 4 dwts. per ton. 450 level No. 2 stop is 3 feet wide and is worth 10 dwts. per ton. We have started to stop the flat portion of the lode below the 450 south. The quartz is 3 feet wide and is worth 5 dwts. per ton. Walker's shaft is down 35 feet 6 inches, progress 2 feet. The water is still very quick, and the rock is hard.

**MYSORE REEPS (Kangundy).**—Mine report for fortnight ending July 7:—Under shaft. This shaft has been sunk 6 feet 6 inches, now 31 feet 6 inches below the 550 level. The lode is 1 foot 8 inches wide, assaying 3 dwts. 17 grains of gold to the ton. We stopped the sinking of this shaft on the 1st inst. and put the men to cut tip plat and cut ground for winding engine at the 550 level. As soon as this is completed we shall resume the sinking of the shaft with all possible speed. 550 level north has been extended 10 feet, now 39 feet from shaft. The lode is 2 feet wide, assaying 11 dwts. 18 grains of gold to the ton. Winze below intermediate level has been sunk 9 feet, now 17 feet below the lode. Lode 2 feet wide, assaying 1 ounce 5 dwts. of gold to the ton. Stope above this level. The lode is 15 inches wide, assaying 18 dwts. of gold to the ton. 425 feet level north has been extended 13 feet, now 268 feet from shaft. The lode is 2 feet wide, assaying 1 ounce 5 dwts. of gold to the ton. If this lode continues we shall soon open up some good stopping ground. Vertical shaft has been sunk 6 feet 3 inches. This was communicated with the 425 level on 1st instant, and then the men have been engaged cutting down footwall of level, and have commenced to sink below the 425 level. The 425 level has been taken down to this place. Crosscut east of the 260 feet level has been extended 13 feet, now 133 feet from level. We have driven through the lode 2 feet 5 inches wide, assaying 3 dwts. of gold to the ton. We have commenced to drive south on the lode, and have driven 2 feet. We hope to meet with something better here soon as this lode will form a junction with the formation mentioned in my report of the 9th ultimo.—Health. The health of the camp is fairly good.

**MYSORE R. Hancock.** Mining operations for the fortnight ending July 6: Rowe's shaft. 1450 feet level north of crosscut west. The lode in the stop is 1 foot 6 inches wide, assaying 1 ounce 3 dwts. 6 grains.—1460 feet level north of stop winze. The crosscut east from this level has been driven 21 feet, making a total distance driven of 66 feet. There are three stopes in the back of this level, the average width of the lode being 4 feet 3 inches, giving an average assay of 18 dwts. 9 grains.—1460 feet level south of crosscut. This level has been driven 10 feet, making a total distance driven of 380 feet 3 inches. The lode is 2 feet wide, assaying 1 ounce. The winze in the back of this level has been sunk 10 feet, making a total depth of 10 feet 6 inches. The lode is 2 feet wide, assaying 1 ounce 5 dwts. There are five stopes in the back of this level, the average width of the lode being 1 foot 10 inches, giving an average assay of 19 dwts. 2 grains.—1460 feet level north of crosscut. The lode in the stop in the back of this level is 1 foot 6 inches wide, assaying 6 dwts. —1460 feet level north of stop winze. The drive north on the side of this level opposite to the crosscut west has been driven



## PROVINCIAL SHARE MARKETS.

## THE CORNISH MINE SHARE MARKET.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (July 30):—The Mining Share Market is without any improvement on the dulness of tin, and unsatisfactory result of Tuesday's sale showing a further reduction as compared with the last. Prices generally are weaker with the exception of Dolcoath, which remains firm in view of a dividend of 6s. 6d. a share at the coming meeting on fully-paid shares. Quotations:—Basset United (Limited), 17s. to 18s. 6d.; ditto (5s. 6d. paid), 4s. 6d. to 5s.; Blue Hills, 2s. to 2s. 6d.; Carn Brea United (Limited), 1s. to 2s.; ditto (2s. 6d. paid), 2s. 6d. to 3s. 6d.; Devon (Limited), 1s. to 2s.; Dolcoath (Limited), 18s. 6d. to 19s. 6d.; ditto Consols, 19s. to 20s.; East Pool, 1s. to 2s.; Killfretth (Limited), 7s. 6d. paid, 6s. to 6s. 6d.; Polberro, 7s. to 8s.; West Kitty, 2s. to 2s. 6d.; Levant, 4s. to 4s. 6d.; Wheal Grenville, 6s. to 6s. 6d.; Wheal Kitty, 4s. to 5s.; Wheal Metal (3s. paid), 3s. to 3s. 6d.

Messrs. ABBOTT and WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of July 30:—There has been no particular feature of interest in the Cornish Mining Market during the past week, and business still continues limited. Dolcoaths have kept steady, their prospects at present being considered fairly good; whilst favourable reports are being received from the Basset Mines, where a good deal of development work is being carried out. Quotations herewith:—Blue Hills, 1s. to 2s.; Basset Mines, 2s. to 2s. 6d.; Carn Brea, 2s. to 2s. 6d.; Dolcoath (fully paid), 19s. to 20s.; ditto (7s. 6d. paid), 6s. 6d. to 6s. 6d.; East Pool, 2s. to 2s. 6d.; Killfretth, 2s. to 2s. 6d.; Polberro, 7s. to 8s.; South Crofty, 2s. to 2s. 6d.; West Kitty, 2s. to 2s. 6d.; Wheal Grenville, 6s. to 6s. 6d.; Wheal Kitty, 4s. to 5s.; Wheal Metal (3s. paid), 3s. to 3s. 6d.

## MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market street, write July 30 (noon):—Throughout the past week depression all round the markets has been the ruling feature. Just at the latest better figures are marked, but they still leave prices, for the most part, distinctly below those quoted a week ago. The influences contributing to the all-round decline are so varied that it is useless to dissect each variation. We, therefore, simply draw attention to the changes as enumerated below in *extenso*, leaving the changes in figures to tell their own tale. One feature there is in home rails worth specially mentioning, and that is the rise of 5 in Lancashire and Yorkshire Railway Ordinary stock, on a dividend above expectations. Other railway dividends have not exceeded anticipations, and, as usual, when only the best expected or given figures have either fallen away, or at best been maintained, Consols are a little down on the week. Colonial Government Investments are without change. Home Corporation Stocks, &c., all better again where altered. This class shows a steady absorption by investors. Miscellaneous classes show advances in most instances, but the purely miscellaneous class gives a majority of changes against holders.

ENGLISH RAILS.—Higher: Lancashire and Yorkshire, 5s. Lower: Corns, 1s. 10d.; Great Eastern, 1s. 10d.; York Deferred, 1s. 10d.; Western, 1s. 10d.; Brighton A, 1s. 10d.; Chatham, 1s. 10d.; London and North-Western, 1s. 10d.; Sheffield A, 1s. 10d.; Districts, 1s. 10d.; Midland, 1s. 10d.; North British, 1s. 10d.; Barwick, 2s.; Dover A, 1s. 10d.

CANADIAN AND AMERICAN.—Lower: Atchafalaya, 1s. 10d.; ditto Income Bonds, 1s. 10d.; Canadian Pacific, 3s.; Trunk Ordinary, 1s. 10d.; ditto Guaranteed, 2s.; ditto First Preference, 2s.; ditto Second Preference, 1s. 10d.; ditto Third Preference, 1s. 10d.; Mexican Rail, 1s. 10d.; Central Pacific, 1s. 10d.; Milwaukee, 1s. 10d.; Denver, 2s.; ditto Preference, 3s.; Louisville, 3s.; New York Central, 2s.; Erie, 2s.; Ontario, 1s.; Norfolk Preference, 1s. 10d.; Union Pacific, 1s. 10d.

CONSOLS.—3-16 lower. COLONIAL STOCKS, &c.—Unchanged. CORPORATION STOCKS AND DEBENTURES.—Higher: Hall Three and a-half per Cent., 1; Liverpool Three and a-half per Cent., 1; Manchester Four per Cent., 1; Nottingham Three per Cent., 2; St. Helena Three per Cent., 1 to 2.

FOREIGNERS.—Higher: Egyptian United, 1s. 10d.; Lower: Argentine Six per Cent., 1; Argentine Five per Cent., 1; Brazilian Four and a-half per Cent., 1; Brazilian Four per Cent., 1; Italian Renter, 1; Spanish Four per Cent., 1; Turkish "D," 1s. 10d.

BANKS.—Higher: London and Midland, 1s. 10d.; Lower: Imperial Ottoman, 1s. 10d.; Mercantile Bank, 1s. 10d.

INSURANCE.—Higher: National Boiler, 1s. 10d.; Thames and Mersey, 1s. 10d.; Lancashire and Yorkshire Accident, 1s. 10d.; Lower: Liverpool, London, and Globe, 1s. 10d.; Alliance Marine, 1s. 10d.; Royal, 1s. 10d.

COAL, IRON, &c.—Higher: Ashbury's 3; Bolckow (£12 paid), 1s. 10d.; Ebbw Vale, 1s. 10d.; Lower: John Brown's, 1s. 10d.

TELEGRAPHS AND TELEPHONES.—Higher: Anglo-American Preference, 2; Telegraph Consolidation, 2; Western and Brazilian Preference, 1s. 10d.

BREWERS.—Higher: Allsopp's, 5s.; Boddingtons, 1s. 10d.; Chester's, 1s. 10d.; Lower: Parker's, 1s. 10d.

MISCELLANEOUS.—Higher: Crosses, 1s. 10d.; Dorman Long, 1s. 10d.; Henry's, 1s. 10d.; Ryland's, 1s. 10d.; Salt Union, 1s. 10d.; Gas Light A, 4s. Lower: Tower Ordinary, 6d. to 1s.; Brunner Mond, 1s.; Chadwick's, 1s.; Coats's, 1s.; Conard Steam, 1s.; Eastman's, 1s. 10d.; Hetherington's, 1s.; Manchester Palaces, 1s.; Spiers and Pond, 1s.; United Alkali, 1s. 10d.

LATER (4.0 p.m.).—In Home rails, London and North Western are prominent to-day, with rise of 2s. and some others mark distinctly better figures. Americans quote well, but public demand for this class is very meagre, remarks which apply also to Canadian issues.

## SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (July 30), writes:—During the past week the markets have been idle, although trade reports are encouraging. The unsettled state of politics in America, the East, and in Rhodesia is no doubt restricting business. Transactions now entered into are for new account, August 1st.

In shares of coal, iron, and steel companies prices are steady. The new preference shares of Stewart and Clydesdale are to be issued at £15 each. The Cowdenbeath Coal Dividend is announced at 7s. per cent., making 8s. for the year. Niddrie are at 39s., and Steel Company of Scotland 5s.

In shares of copper concerns there has been a fair amount of business doing, but prices are lower in sympathy with the market for the metal. Arizona touched 52s., Rio Tinto 22s. and Tharsis 109s. 6d., but are all a little better. Mount Lyell are about 8s.

In shares of gold and silver mines a fair amount of business has been done. Indians have improved, especially Mysore on striking the lode in Crocker's shaft. Chartered and Kafir shares have been flat owing to selling from the Continent, and to the protracted nature of the war in Rhodesia. The sentences on Dr. Jameson and other leaders of the raid may also have affected the market. Chartered fell to 50s., Consolidated to 11 3-16, East Rand to 6s. and Randfontein to 49s., but have all recovered slightly. Afrikaner are at 132s.; African Estate, 37s. 6d.; Associated Southern W.A., 52s. 6d.; Brownhill Proprietary, 10s.; Broken Hill, 61s.; Block B, 36s. 3d.; Brilliant and St. George, 31s. 3d.; Bayley's Reward, 5s. 3d.; Balkis Land, 6s.; Big Blow, 4s. 3d.; Croydon Consols, 5s. 3d.; Central, 6d.; Central Exploration W.A., 22s. 6d.; Caledonian, 2s. 6d.; Exploring Land and Minerals, 22s. 6d.; Emma, 2s.; East Sheba, 8s. 3d.; Hils or Miss, 47s. 6d.; Hampton Plains, 26s. 6d.; Halcroft, 59s.; Hannan's Group, 31s. 3d.; Hammond's Matabel, 4s.; Irons, 5s. 3d.; Lisbon, 6s. 3d.; La Reine d'Or, 5s. 3d.; Lindays, 8s.; Mount Charlotte, 37s.; Matabel, 4s.; Marchmont, 1s. 6d.; New Steyn Estate, 51s. 3d.; NII Desperandum, 20s.; North Boulder, 29s. 6d.; Nigel

Deep, 33s. 9d.; New Guadalcasar, 3s.; Otto's Kopje, 9d.; Ophir Concessions, 1s. 6d.; Princess Royal, 7s. 6d.; Port Phillip, 2s. 6d.; Paddington, 36s. 3d.; Rhodesia (Limited), 20s.; Sherlaw's, 10s.; Spes Bona, 27s. 6d.; Sutherland Reef, 1s.; Sunburst, 2s.; Silati River, 10s.; Sheba Queen, 6s. 3d.; True Blue (Hannan's), 18s. 9d.; Tehnantepec, 5s.; Taitapu, 55s.; United Gold Fields of Manica, 8s. 6d.; Violet, 22s. 6d.; Westleigh, 7s. 6d.; Wentworth, 18s. 6d.; Wolverand, 50s.; Waterfall Estates, 15s.; and Yerrakonda, 1s. 9d.

In shares of miscellaneous companies there is not much alteration to notice. Young's Oil are at 29s. 6d.; Lawes' Chemical, 5s.; and Nobel Dynamite, 17s.

## EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of July 31:—Since last week's report the leading Scotch railway ordinary stocks have dropped, although the traffic announced this week have been remarkably good. Caledonian Deferred has fallen from 62s. to 61 11-16, North British from 50 9-16 to 49s. Highland, however, has improved from 102s. to 104s. In insurance shares Caledonian have declined from 30 to 29s. National Guarantee from 64s. to 58s. 9d., Standard Life from 56s. to 55s. North British and Mercantile have risen from 38s. to 38s. Northern from 75s. to 78s. In bank shares Clydesdale have declined from 21 to 20 7-16, Commercial from 80 to 79s. Royal from 239 to 238, Union from 23s. to 23 3-16. Cowdenbeath Coal have receded from 16s. to 16s. Steel Company of Scotland from 5s. to 4s. 19s., Rio Tinto from 23s. to 22 5-16, Tharsis from 114s. to 110s. Stewart and Clydesdale have improved from 13s. to 13s. Young's Paraffin from 28s. to 30s. The following shows the latest nominal quotations of deposits of reconstructed Australian banks per £:—Australian Joint Stock 17s., Bank of Victoria, 18s. 6d., City of Melbourne Bank 2s. 9d., Commercial Bank of Australia, 1898, 15s., 1899, 15s. 3d., 1900, 15s., 1903, 15s., London Bank of Australia, 17s. 3d., National Bank of Australia, 1898-1900, 18s. 9d., and 1898-1905, 18s. 6d., Queensland National Bank 15s. 6d.

## MINING IN CORNWALL

AND DEVON:  
NOTES ON MINING IN THE WEST.

(FROM OUR OWN CORRESPONDENT.)

TIME was when East Pool shareholders never went empty away from a meeting; now they think they have done well if they make both ends meet. They have not even managed to do that during the last quarter, for at the meeting on Monday a loss of £1458—the largest for twenty years—was shown. Captain Bishop, in his report, foreshadowed an improvement in one part of the mine, but his statement was not a very hopeful one, and it is evident that there are troublesome times in store for East Pool adventurers. Mr. J. R. Bramwell, who presided, spoke in anything but a cheerful view of the future of the mine, and hinted that those most largely interested would not be content to go on making losses for an indefinite period. It is only fair to remember that the present position of affairs is worse than it would be if the mine was being worked under normal conditions, but the best tin ground is under water, owing to the deadlock with Wheal Agar, and the upper levels seem to be steadily falling off. Mr. Bramwell held out no strong hope of an early settlement of the controversy, which would be farcical were not the results of further delay likely to be so serious to the district. On this occasion it certainly seems that the Wheal Agar people are more to blame than the East Pool executive, they having persistently refused to name their arbitrator before the signing of the agreement—so persistently that Mr. Bramwell and his colleagues have not unnaturally come to the conclusion that something underlies their refusal, and that they have in view the appointment of someone to whom the East Pool adventurers would have good reason to object. The proper person to appoint is obviously someone of equal standing in the county with Captain Josiah Thomas, and possessing a thorough knowledge of Cornish mining, and the conditions under which it is carried on. Mr. Frank Oats, the Chairman of the Basset Mines (Limited), would command the confidence of both parties, and would no doubt consent to act. It is to be hoped that the Wheal Agar people will think better of the attitude they have taken up, and will appoint Mr. Oats, or some other suitable man, without further delay.

BLUE HILLS shareholders have not yet abandoned hope. The mine has been on the verge of abandonment more than once, and quite recently it looked as if closing down was imminent; but the manager is now strongly of opinion that the main part of the lode at the 100 should be proved, and driven on eastward, also that two winzes should be sunk below the 80, so as to prove how far the tin was running east. The cost of these operations is estimated at £320, and the adventurers decided to leave the future working of the mine in the hands of the committee. Probably the points indicated by Captain Richards will be proved, as there is a general feeling against abandoning a concern which really has exceptionally good chances of ultimate success.

THE announcement that the Dolcoath dividend would be at the rate of 6d. per share—equal to £1 on the old shares—has given general satisfaction, and the meeting is looked forward to with great interest. The opening of a good lode in the Stray Park part of the mine is a matter of the last importance to Dolcoath, and may very possibly lead to the early restarting of one of the neighbouring sets, through which the same lode is believed to run. More than one attempt in this direction has been made, but never with such good warrant for appealing to the public for support as now exists.

THERE would seem to be some probability of the unfortunate shareholders in Wheal Uny enjoying the unexpected pleasure of receiving a dividend after all. It is said that when the affairs of the mine are finally settled up there will be a considerable sum to be apportioned.

AN INTERESTING APPEAL CASE.—An appeal case has just been heard at Westminster, which was of much interest to those connected with Canadian mining affairs. Gold was found last year on land which had been granted to the Esquimaux and Nanaimo Railway Company by the Government of British Columbia, to which the company laid claim, and when prospectors flocked on to the land proceedings were taken against them for trespass. When the case was tried in Victoria it was decided that the precious metals were not included in the grant, and since then the matter has been taken from Court to Court. The Attorney-General of the province has lately arrived in London to represent his Government at the last appeal, and we learn from him that the first decision has been upheld, so a free miner's license enables the holder to prospect and work his claims on any land in the province without fear of a prosecution for trespass.

## VICTORIAN GOLD MINING.

By THOMAS CORNISH, M.A.I.M.E.  
Author of "Our Gold Supply," &c.

HOW to mine, and how not to mine, are questions of consideration at present. In the colony under local control most of the leading mines are being worked with skill, energy, and economy. It is pleasant reading to go through some of the pithy and sensible reports of many of the mines, and note how steady perseverance is overcoming many difficulties that obstructed progress.

Ballarat.—The Band and Albion Consols, after several years steady development (without dividends) have deepened their shaft to 2000 feet, and at the 1800 feet and 1900 feet levels are extending crosscuts east and west. A new lease of life will be given to this grand old mine again that has already paid dividends from its alluvial workings of about £1,000,000, and from its quartz lodes nearly £500,000. The excellent prospects opened up by the deep developments of the mines in the Ballarat plateau will afford a long era of prosperity to the district.

The Sir Henry Loch, north of the Band and Albion, now working at the 1500 and 1620 feet levels, are also further deepening the shaft to 2000 feet. The Star of the East (south) at the 2000 feet level (No. 1 shaft) are busy with developments of a promising kind, while at the 1800 feet and 1500 feet levels stopes wearing usual appearance. No. 2 shaft on lode west of No. 1 shaft are carrying extensive developments in crosscutting, stoping, and driving on lodes at various levels from 1250 to 1500 feet. This mine has had a good run of dividends of upwards of £270,000, and is expected soon to resume the dividend stage. The mine is well equipped with machinery, including a 100-stamp mill.

The South Star (south of and adjoining the Star of the East) have opened out and cut the lode with good prospects at 2000 feet, while developments are rapidly progressing in the various levels from 720 feet, 870 feet, 920 feet, 1010 feet and 1400 feet. The last report says the stopes and drives are yielding the usual quantity of payable stone. This company, which has hitherto been crushing at neighbouring mills, and commenced its dividend career, is about to erect a powerful crushing plant for itself. Their deepest levels are at 1800, 1900 and 2000 feet.

The energy and steady persistence of this and other mines will no doubt be amply rewarded by the future dividends now for many years assured.

On the eastern belt of lodes various mines are in active work and doing well, but their developments are not yet so deep, the shafts ranging from 300 feet to 1000 feet. The prospects already obtained fully justify the downward and crosscutting developments so much needed.

The Great Buninyong Estate Gold Mining Company are making excellent progress with their works at both the alluvial and quartz shafts. The alluvial shaft fortunately went through the basalt at comparatively shallow depths, and are now rapidly sinking in the schist, preparatory to opening out levels to cut the alluvial leads of rich wash dirt in the gutters north and south of the main shaft, at which puddling machines will be erected.

At the No. 2 quartz shaft, about 350 feet in depth, levels are being opened out to cut the proved lodes east and west. Sinking will also be continued. Both shafts are well equipped with winding and pumping plants, and as soon as the quartz lodes are sufficiently opened, a crushing mill will be added. An early and prosperous career may be considered as a certainty for this well-managed company.

Egerton.—The Egerton Company and Black Horse United are both pushing on their developments. The prospects of this field are improving, and show that years ago when gold was being got in such large quantities more crosscutting should have been done at the various levels from 300 feet to 1600 feet, as there are known to be side lines of lodes in this rich belt, never yet touched, that should be driven for at once.

Bendigo.—Steady and satisfactory progress is being made on this great gold field on the several main lines of reefs, Lansell's 180 Mine being the deepest level opened at 3550 feet from the surface. This is the deepest crosscut in Australia.

The energy of the owner has been, and is being, as it deserves, well rewarded. Mr. Lansell has been a successful and plucky prospector. He had the courage of his opinions and carried them out without reference to anyone. He had no wet blankets to thwart his enterprise in his own mines—hence success.

The great drawback that so many mines have had to bear has been no continuity of policy. Directors get often changed, many of them are timid and hesitating, or do not know much about mining. They have no opinions of their own, and get swayed in their views by one and another. Some managers have extended views of mining, while others, who may be very able men in carrying on mining operations, are cramped in their ideas, or have the works retarded by the hesitating policy of those who control their actions.

If many of the local directors and managers of mines in and around Bendigo had been imbued with a little more of Mr. Lansell's enterprise and means—and the means would have come with the enterprise as his did—there would have been much more gold produced, and more mines opened to considerable depths in the district.

There is a large scope for profitable development of mines in the Bendigo district if the companies will go on with pluck and enterprise and put down their shafts continuously, and do their crosscutting at the same time. Great Extended Hustlers shaft was only 600 feet in 1873, when I went below to examine the works, although the mine had been paying rich dividends from the splendid bodies of stone they had been working. The shaft had not been deepened for six years previously. This was a mistake, as I pointed out at the time. A shaft in that position should never have stopped its annual deepening (say) from 60 to 100 feet a year or more.

However, it is gratifying to see that the agitation I helped to set going in the early Seventies has done so much good for deep and profitable mining in Bendigo, Ballarat, and other gold fields.

The numerous deep shafts on the main lines of lodes at Bendigo that for the most part have been so profitable to the owners should be sufficiently encouraging to induce new companies to give attention to active development of their works.

Mines that are allowed to stand idle are no good to anyone, and are monuments of folly as a rule. It would be better to have fewer companies better managed than so much time wasted in shepherding. People who go into gold mining should either mine or leave it alone. An unworked mine will never pay, and loading on other people's energies to develop ground in the neighbourhood is as bad as waiting for dead men's shoes.

This is the policy, or rather want of policy, now so much in vogue amongst some of the amateur directors of companies, who, not knowing what to do with the mines they have managed to get control of, think they will do best by doing nothing at all, and the unfortunate shareholders have to wait while incapables are making up their minds how to get gold from a mine without working it.



## AFRICAN MINES' JUNE OUTPUT.

	GOLD.					
	Jan.	Feb.	Mar.	Apr.	May.	June.
	Oz.	Oz.	Oz.	Oz.	Oz.	Oz.
Appantoo .....	348	—	—	—	376	226
Barrett .....	550	571	533	400	500	503
Block B .....	2,548	2,621	2,870	3,153	2,854	2,511
Buffelsdoorn .....	3,625	2,539	2,202	—	—	—
Champ d'Or .....	870	2,377	2,920	3,360	3,383	3,074
City and Suburban .....	6,308	8,037	8,203	7,835	8,351	8,296
Crown Reef .....	8,890	10,845	11,303	11,498	11,369	10,723
Durban-Rodepoort .....	3,812	5,282	5,558	5,590	5,519	5,604
Eastleigh .....	1,950	1,844	2,100	2,155	1,650	1,850
Ferreira .....	9,879	11,770	12,770	12,219	13,115	13,418
Forbes Reef .....	118	144	150	102	67	—
Graskop .....	129	201	310	222	204	180
Geldenhuis Deep .....	3,382	2,793	3,684	4,046	4,173	4,031
Geldenhuis Estate .....	2,430	5,815	6,204	6,189	5,897	6,889
Geldenhuis Main Reef .....	1,747	1,876	1,881	1,655	1,214	1,589
George Goch .....	2,278	3,082	3,383	4,362	4,660	3,740
Ginsberg .....	813	910	938	1,175	1,018	1,015
Glencairn Main Reef .....	3,163	4,401	4,246	4,527	3,290	3,468
Henry Nourse .....	3,616	5,288	6,166	6,223	6,298	6,649
Joe's Reef United .....	199	155	175	227	294	227
Johannesburg Pioneer .....	2,611	2,698	2,621	2,613	2,810	2,826
Jabilee .....	2,238	2,472	2,323	2,485	3,059	2,502
Jampers .....	3,104	3,317	3,704	4,202	4,935	4,077
Lancaster .....	265	253	—	—	—	—
Langlaagte Estate .....	9,058	9,165	9,568	9,002	9,428	9,131
Langlaagte Star .....	—	—	—	—	1,207	1,491
Langlaagte Royal .....	—	—	—	—	3,182	3,704
Lisbon-Berlyn .....	808	821	842	763	737	655
Lydenburg Mining Estate .....	—	—	4,945	5,404	6,153	5,770
May Consolidated .....	5,048	3,237	3,871	4,323	4,878	5,204
Meyer and Charlton .....	2,437	3,008	3,457	4,006	3,979	4,109
Minerva .....	1,311	276	—	1,379	1,453	1,856
Moodies .....	490	1,000	1,150	1,764	690	940
New Chimes .....	807	1,653	1,692	1,764	1,746	—
New Clewer Estate .....	1,573	1,683	—	—	—	—
New Comet .....	1,349	1,985	2,331	—	—	—
New Crosses .....	2,020	3,058	2,724	2,441	2,772	2,454
New Heriot .....	3,825	5,716	6,045	6,011	6,033	6,014
New Kleinfontein .....	1,326	2,308	—	—	—	—
New Modderfontein .....	—	—	—	—	2,172	2,778
New Primrose .....	9,026	9,101	9,105	9,547	9,004	9,786
New Rietfontein .....	2,076	2,297	2,349	2,327	2,117	2,150
Nigel .....	2,074	2,079	1,798	2,001	2,026	2,274
Orion .....	2,111	2,867	—	—	897	—
Paarl Central .....	287	220	—	—	—	—
Pigg's Peak .....	88	66	—	—	—	—
Porger-Randfontein .....	1,792	1,129	—	—	—	—
Prem. Tati Monarch Reef .....	—	—	—	—	—	368
Princess Estate .....	1,524	1,874	1,537	1,671	2,072	2,274
Robinson .....	12,281	14,823	16,267	15,927	19,333	20,343
Rodepoort Deep .....	—	—	—	1,263	2,171	1,927
Rodepoort Gold .....	—	—	—	—	—	1,214
Rodepoort United M.R. .....	3,337	3,820	4,001	3,961	4,121	3,919
Salsbury .....	2,100	1,950	2,450	2,850	2,950	2,400
Sheba .....	10,010	10,028	12,500	10,340	10,024	8,589
Simmer and Jack .....	6,319	7,753	8,636	8,640	8,653	8,816
Spitkop .....	211	384	286	—	—	—
Stanbop .....	804	810	870	960	920	1,100
Sutherland Reef .....	239	430	378	134	—	—
Tati Blue Jacket .....	—	—	—	—	—	328
Transvaal Gold .....	2,475	2,330	4,945	—	—	—
Treasury .....	—	—	—	—	2,373	—
United Ivy Reef .....	365	624	590	649	570	700
United Langlaagte .....	577	578	367	—	—	—
Van Ryn .....	2,334	2,081	2,088	—	1,551	1,635
Wemmer .....	5,361	4,967	5,202	5,597	5,148	4,636
Wolhuter .....	3,216	4,906	5,524	4,778	5,043	5,884
Worcester Exploration .....	2,050	1,850	2,453	2,444	2,444	2,819

	DIAMONDS.					
	Carats.	Carats.	Carats.	Carats.	Carats.	Carats.
Kofffontein .....	3,800	4,250	4,500	4,750	3,700	4,150
New Gordon .....	—	2,118	—	—	—	—
Un. Mines, Bultfontein .....	6,000	—	—	—	—	—

	COAL.					
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Cassell Coal .....	15,880	22,435	25,017	26,500	18,500	24,000
Great Eastern .....	11,354	15,432	16,100	16,500	13,200	16,600
Transvaal Coal Trust .....	29,400	24,500	29,400	32,200	—	27,800

a 17 days. b 60 stamps, 24 days. c 10 stamps, 26 days. d 50 stamps, 24 days. e 22 days. f 13 days. g 15 days. h 17 days. i 25 days. j mine closed 14 days. k Tailings only.

The following are the profits or losses (the latter being indicated by an \*) made by South African mining companies:—

	CITY AND SUBURBAN.					
	£	£	£	£	£	£
City and Suburban .....	4,223	10,011	—	—	—	—
Crown Reef .....	10,510	14,707	18,050	—	—	14,134
Ferreira .....	—	—	—	28,158	30,286	—
Geldenhuis Deep .....	—	—	—	3,400	—	—
Geldenhuis Estate .....	3,700*	4,400	7,477	4,600	2,800	6,500
Geldenhuis Main Reef .....	2,050	2,662	2,597	1,402	95*	1,554
George Goch .....	436	1,703	—	—	—	—
Glencairn .....	2,167	5,769	—	—	—	—
Jampers .....	2,000	2,000	2,250	3,000	3,885	880
May Consolidated .....	4,784	—	1,600	—	2,888	4,376
Meyer and Charlton .....	616	2,430	3,660	4,010	3,225	3,701
New Chimes .....	6,059	10,289	—	—	—	—
New Heriot .....	5,730	6,552	—	—	—	6,594
New Primrose .....	—	—	—	—	—	—
New Rietfontein .....	—	—	—	—	—	—
Princess Estate .....	387	1,247	—	—	—	—
Robinson .....	19,000	25,000	26,000	27,500	—	38,500
Rodepoort United .....	4,000	6,000	6,457	6,500	4,295	—
Simmer and Jack .....	5,347	7,553	11,466	—	—	10,216
Transvaal Gold .....	2,910	—	—	—	—	—
Van Ryn .....	—	1,505	1,246	—	720*	526*
Wemmer .....	7,958	6,559	6,680	—	—	3,909
Worcester .....	—	—	—	—	—	4,053

	DIAMONDS.					
	Carats.	Carats.	Carats.	Carats.	Carats.	Carats.
Un. Mines, Bultfontein .....	2,000	—	—	—	—	—

	COAL.					
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Cassell Coal .....	1,060	—	4,900	5,500	1,838	4,992
Great Eastern .....	1,300	—	2,300	—	1,500	2,200
Transvaal Coal Trust .....	2,000	3,000	3,000	—	—	2,200

**CHRYSOPEASE.**—Mining for chrysoprase, a beautiful bright stone which takes a polish and is highly prized for jewellery, is being prosecuted nine miles north-east of Visalia. Chrysoprase was first discovered in that locality about ten years ago, and specimens were brought to Visalia. The first specimens were found on the western slope of the small detached clump of hills near the old settlement of Venice, and some prospecting was done at that time. Pieces of float rock were found in different places about the Venice hills, but it was not discovered in paying quantities, and few pieces free from flaws were found. After a good deal of search some fine fragments were found on the eastern slopes of the same hills, and some small veins were discovered. Chrysoprase occurs in thin strata of variable width, and it is difficult to find it in places large enough for use free from imperfections. In all parts of the world in which it has been discovered it is attended by these same elements of uncertainty. Tulare County is the only portion of the United States in which it has been discovered. There the stone occurs in thin layers in silicified serpentine. This rock is hard and difficult to work. Much labour is required to uncover small veins of chrysoprase which are generally

from  $\frac{1}{2}$  inch to 2 inches thick. The result of weeks' work, says the Visalia Delta, was only about 8 or 10 ounces of gem material. The amount dug out was but a few pounds. Most of this was pitted or contained flaws, and the shade of most of it was very light green. It is this uncertainty and the extreme difficulty of getting suitable stone that makes it valuable. "Chronicle."

**A BOOM FOR BRITISH COLUMBIA.**—P. A. O'Farrell, well known in Montana, in a recent letter to the *Western Mining World*, has the following to say of the Trail Creek country, British Columbia:—"While I would advise and warn the public against mining sharks and pirates, I must also tell them that Rossland is about to witness a boom, beside which that of Cripple Creek was mild. London and Paris have their experts on the ground, and these experts tell me that the Trail Creek district is going to add more to the world's supply of gold than South Africa. They say the famous Rand is a poor mining district beside that of West Kootenay. It must be borne in mind that development in this camp has been marred by lack of transportation. The present year will see a different state of things. Two railroads will have connection with the mines, and with that connection the Rossland boom will begin. That boom will extend from the Pacific to the German Ocean, and it will bring millions into British Columbia for mines, railroads, and smelters. For the next 10 years British Columbia will be the most attractive field for mining operations on the globe. Prospectors will crowd her hills and mountains, and scour her valleys. Mining camps, smelters, and railroads will follow in the prospector's wake, and the wild and glorious solitude of this magnificent mountain land will cease to be."

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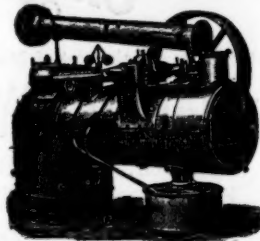
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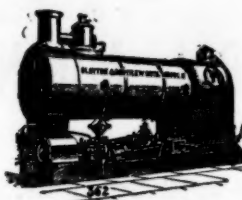
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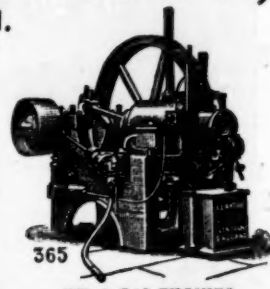
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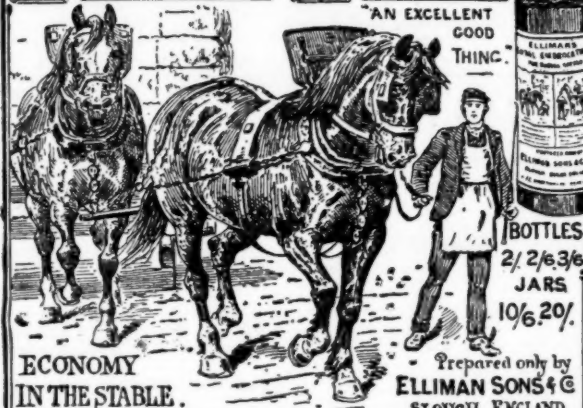
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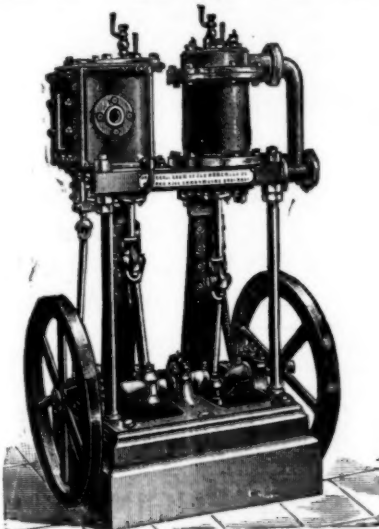
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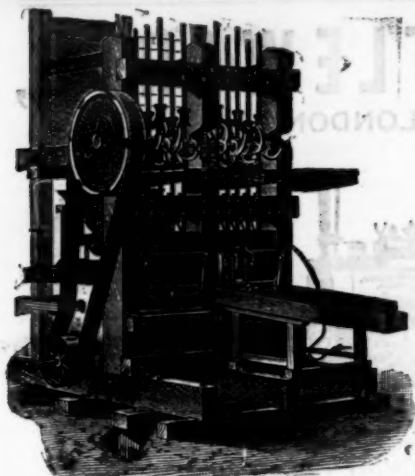
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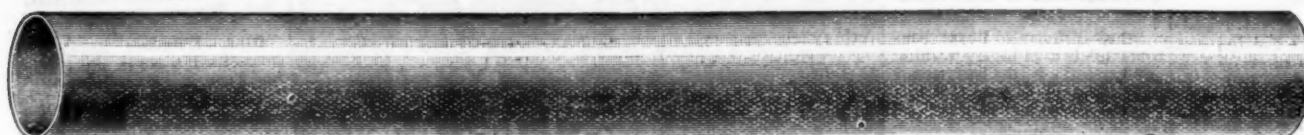
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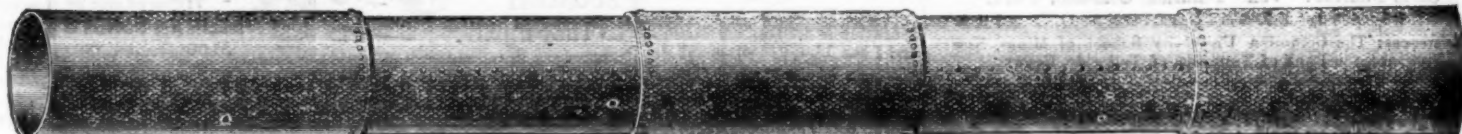
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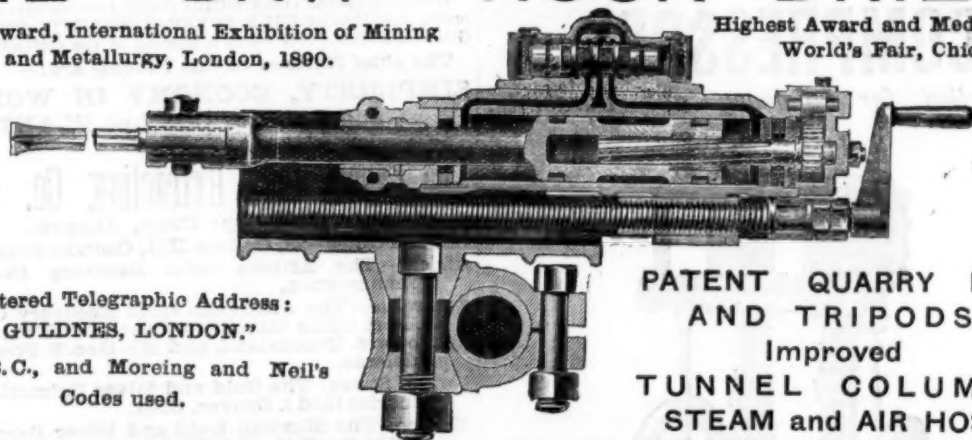


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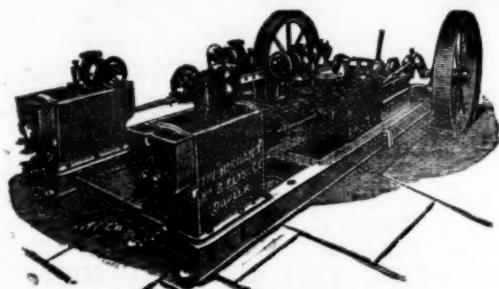


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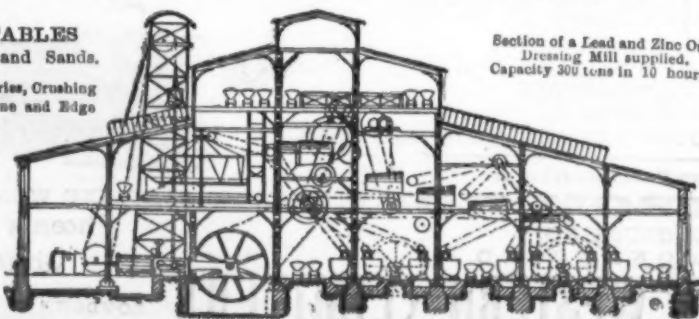
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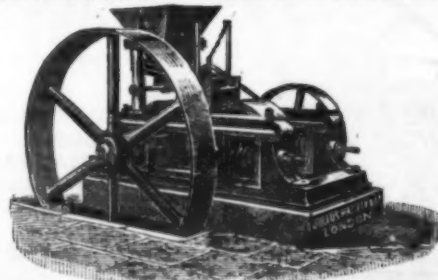
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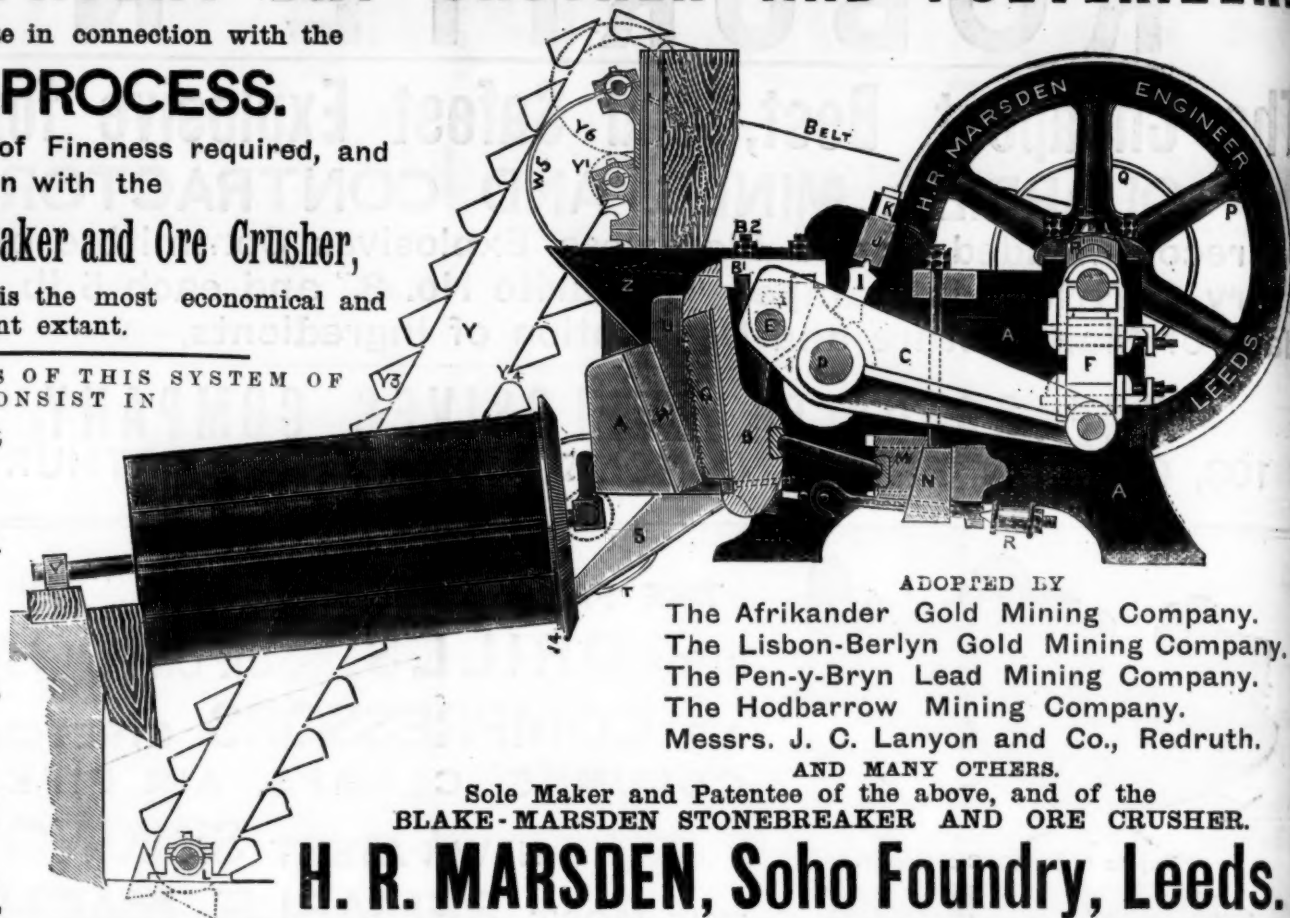
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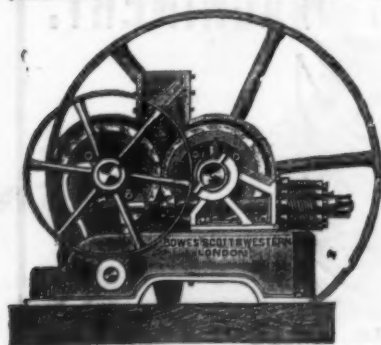
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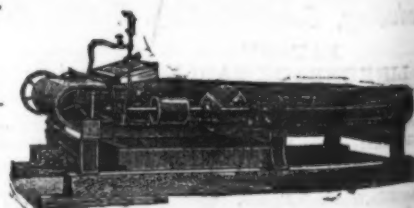


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